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A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

JANUARY 12, 1927

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FIRE HOSE

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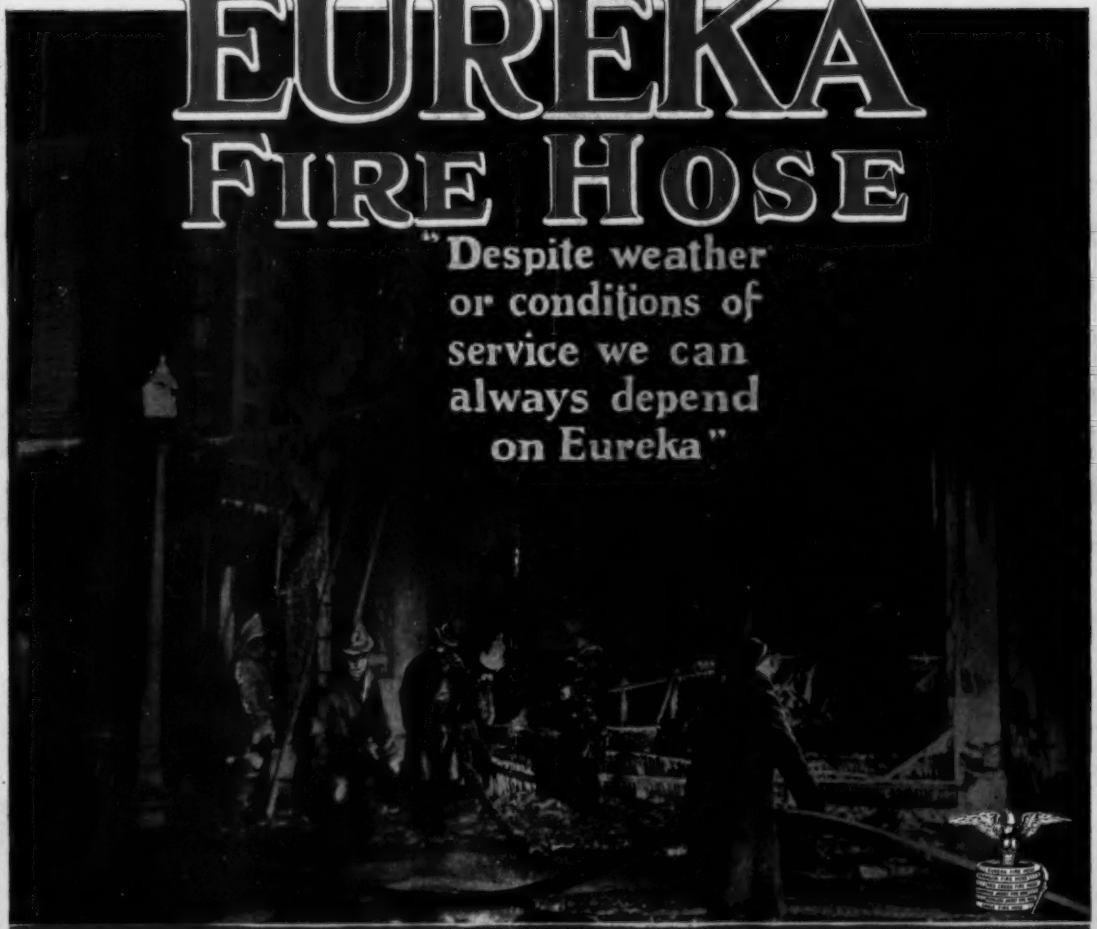

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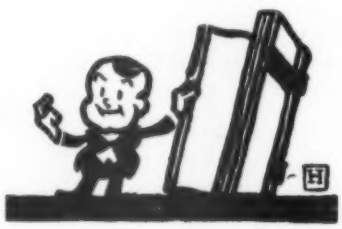

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The Publishers

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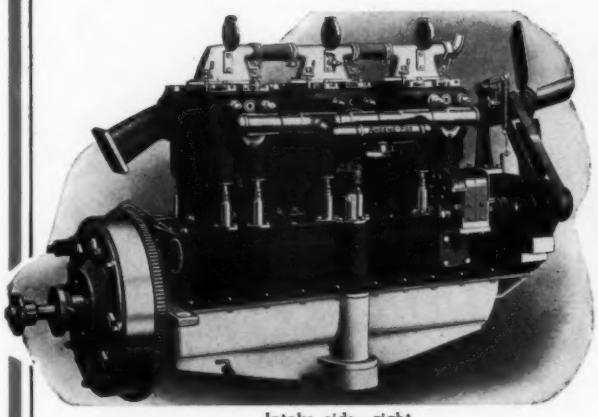
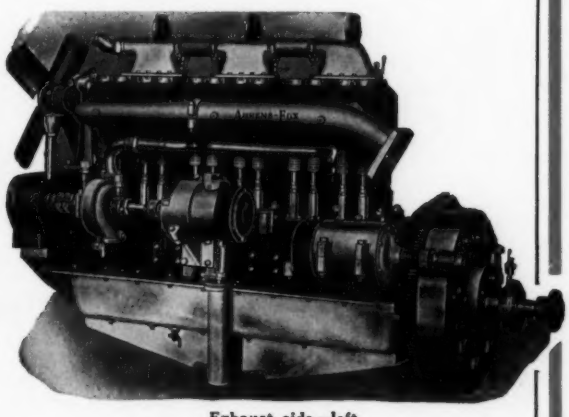


Intake side—right



Exhaust side—left

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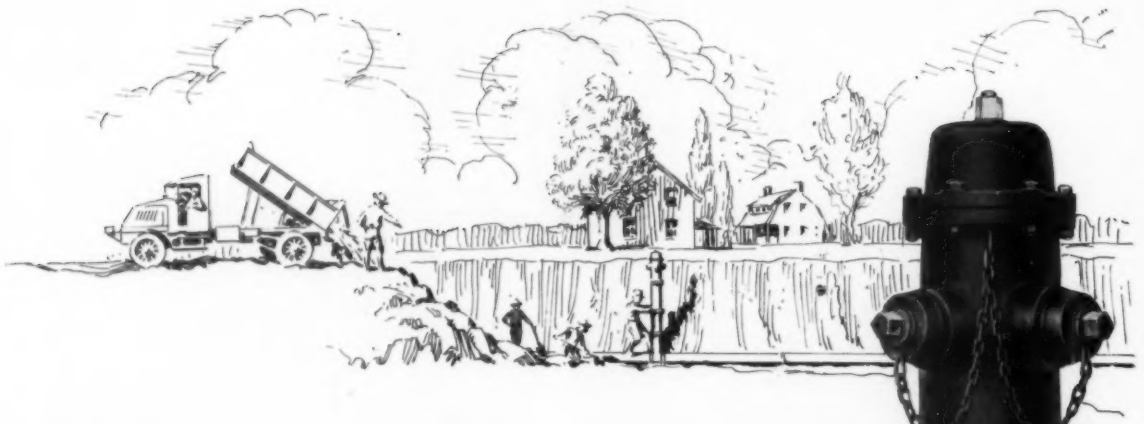

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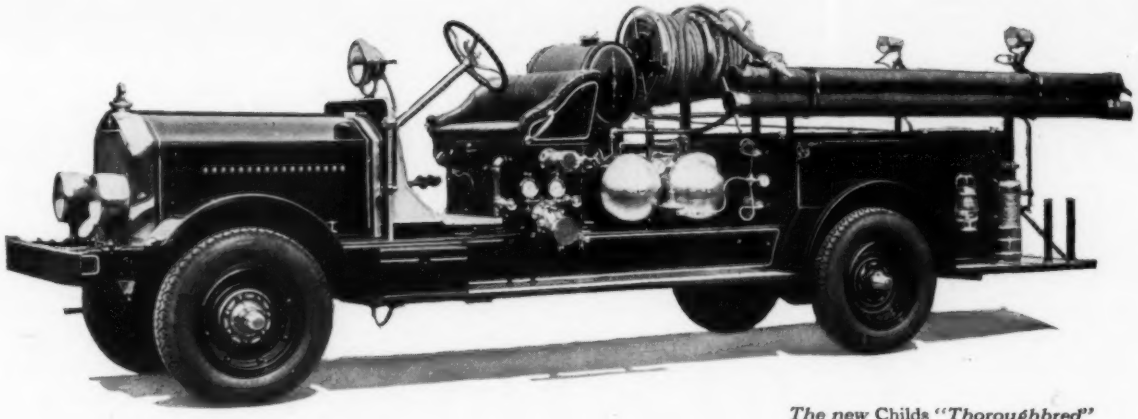

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Columbus, Ohio

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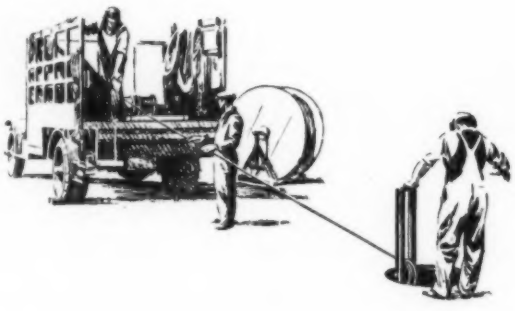

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Construction work requires skill that can be obtained only through experience. Few men outside this organization have an opportunity to obtain this experience as it is seldom that a city finds it necessary to install more than one fire alarm system during the working life of the average man.

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Newton Upper Falls, Mass.

"A Box A Block"

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX JANUARY 12, 1927 NUMBER 1

Effective Streams from Various Sized Mains

Relation of Main Sizes to Fire Streams—Pressures on Mains—Securing Effective Streams from Small Main Layouts

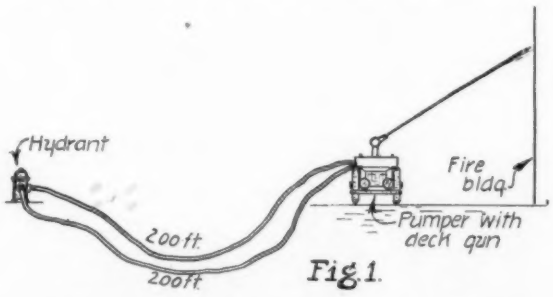
By FRED SHEPPERD, Managing Editor, FIRE ENGINEERING*

BY effective streams are meant just what the name implies—streams which are effective in operating on a fire. This, then, must take into account the type of fire on which the streams are operating as well as the size of the fire.

A stream which is effective on a small fire may be entirely ineffective on a large fire. Or a stream which may be effective on a still day may be useless when a gale is blowing.

These points must be taken into consideration in the discussion of effective fire streams.

Barring weather conditions the diameter and pressure of fire



How a Pumper with Deck Gun is Employed

streams are the factors which have greatest bearings on the effectiveness of streams.

Considering the diameter of the stream, a fire stream with the greater diameter is normally more effective than one of smaller diameter even though the pressure be the same. This is due to two conditions, namely, the greater range of the stream of greater diameter and the greater quantity of water carried.

For instance, a one-inch stream at 70 pounds pressure has in the neighborhood of 85 feet vertical reach and 72 feet horizontal reach whereas a 1½ inch stream at the same pressure has a vertical reach of 92 feet and a horizontal reach of 84 feet, giving a vertical reach of 7 feet more than the 1-inch stream and a horizontal reach of 12 feet more than the 1-inch stream.

Besides carrying the greater quantity of water the 1½-inch stream has more solidity and can stand more interference from wind than the smaller size stream.

Weather conditions, as noted above, have a direct bearing on the capabilities of streams. A heavy atmosphere offers more resistance to the projection of streams than does a dry clear atmosphere and wind conditions frequently determine whether streams are effective or not.

Before giving the general classification of streams I would like to quote John R. Freeman's definition of good fire streams.

These are the first specific definitions of such streams set forth and in view of the fact that the definitions still hold good they are of double interest.

Before giving these denitions, however, I would like to say that by good streams are meant streams that carry to a calculated distance retaining to a reasonable extent their solidity and without excessive spray. Costly experience has shown that in serious fires a small stream is evaporated as it falls in a spray to the flames, while, if a large stream is thrown, enough may escape the evaporation to pass through the heated gases and reach the burning materials themselves.

Mr. Freeman's specifications for good fire streams are the following:

(A) "A stream which at limit named has not lost continuity of stream by breaking into showers of spray.

(B) "A stream which up to the limit named appears to shoot 9/10ths of whole volume of water inside of a circle 15 inches in diameter, and ¾ of it inside of a 10-inch circle.

(C) "Which is stiff enough to attain in fair condition the height or distance named, even though a fresh breeze were blowing.

(D) "Which at limit named will, with no wind, enter a room through a window opening and barely strike ceiling with force to spatter well."

Now for the general classification of streams: Nozzle pressures of from 40 to 60 pounds with from 1⅛ to 1¼ inch nozzles are generally considered to give streams which may be classed as good and which can be handled without special appliances; for deluge sets, turret pipes, etc., with 1½ and larger nozzles, 60 to 90 pounds pressure is desirable for effective fire fighting. Pressures above 90 pounds may be satisfactorily employed and some of the larger departments have set the nozzle pressure on large pipes at 100 pounds for use at large fires.

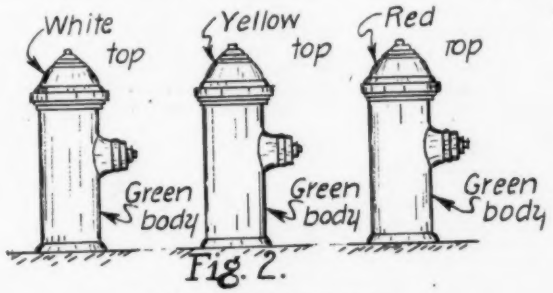
Of course, the height, area and general character of the building are factors determining at what pressure a stream may be considered good, as well as determining whether or not a nozzle is of sufficient size to furnish an effective stream.

Relation of Main Sizes to Fire Streams

With the above preliminary data in mind we will enter into the discussion of water pipe sizes and their relation to effective fire streams.

When it is said that a four-inch main can supply but a single fire stream, pressures are assumed to be within the ordinary range of such as found in present day water systems.

But, theoretically, there is no limit to the number of fire streams that could be supplied by such a main. It is but a question of pressure. If, for instance, a pressure of 1,000 pounds



One System of Marking Hydrants

per square inch could be maintained on a four-inch main the discharge would be increased proportionately through that main. Instead of supplying but one fire stream it might be capable under these conditions of supplying many streams.

But water mains and water pumping machinery as well as hose are not built to stand or produce pressures as great as this.

These limitations—strength of mains, capabilities of pumps,

* From a paper read before the annual convention of the International Association of Fire Chiefs at New Orleans, La.

strength of hose, and safety in handling hose lines govern the capabilities of four-inch and other size pipes.

The factors which enter into the number of streams that mains of various sizes will supply include the following:

Diameter of pipe.
Age of pipe.
Length of pipe line.
Diameter and length of feeder lines.
Pressure at source of supply.

Other factors enter into consideration such as grades along which the mains are laid and also the number and type of fittings such as valves, etc., in pipe lines. These two latter, however, will be taken into consideration here.

The various factors will be treated separately.

Diameters: Quantity of water which can be supplied by mains increases tremendously with the increase of diameter. A four-inch main, for instance, supplies less than one quarter of what an eight-inch main would supply.

Age: Age greatly affects the capabilities of mains particularly where incrustations and sediment are apt to form. The older the main the larger the amount of incrustations and the greater the consequent reduction in flow area.

Length: Length of main to point of supply is another important factor in determining the capabilities of a system. Friction loss in water mains varies directly as the length (the flow remaining constant) and the longer distance water must flow from the source of supply to the point at which it is being taken from the main, the greater will be the drop in pressure due to friction. That is why, in the table shown later, the number of streams which a main can supply decreases as the length of the main increases.

Diameter and Length of Feeder Lines: Where a pipe line is supplied by a single supply main, the diameter and length of the supply main enter into the problem very definitely. Suppose a six-inch pipe line 1,000 feet long is being supplied by an eight-inch main which, upon investigation, is found to be 2,000 feet to the source of supply, without cross connections. This great length of the eight-inch main will have a marked effect in reducing the pressure in the six-inch main as soon as flow starts, due to the friction loss in the 2,000 feet. The length of the feeder mains must be taken into account, as well as their diameters, in determining the performance of any particular main in the system.

Pressure: The subject of pressure in fire streams is quite well understood by those engaged in the fire service and all that need be said here regarding pressures in water mains is that such pressures have the same effect in water mains as in fire hose: The higher the supply pressure, the greater the discharge from a main; the higher the pressure the longer the line of pipe that water can be forced through.

What Happens When Excess Capacity Is Required of a Main.

When an attempt is made to take more water from a main than it will normally supply, under a given pressure, the pressure may drop until it falls below zero—that is, becomes a vacuum. If the vacuum is pronounced, trouble may be expected in the pumping engine or in the fire stream delivered by it.

If there is a vacuum at the intake of the pump, it requires only a loose connection anywhere within the pump to cause air leakage. Air leakage means broken streams, for air which enters the pump is compressed and upon leaving the nozzle under pressure expands and breaks the stream up, reducing the range and effectiveness. Where the pressure at the source of supply to the main is constant there is a limit to the amount of water which can be taken from the main. Once a vacuum is created at suction of a fire engine taking water from a main, the limit may be considered to have been exceeded.

Pressures on Mains

In the figures given in the table below an average pressure of 45 pounds will be assumed in the main. At this point it might be well to classify various pressures as found in water works. Low pressure—below 45 pounds—sufficient for fire engine or pump supply but inadequate for other service except to a very limited extent in very low buildings.

Medium pressure—45 to 70 pounds—sufficient for moderate streams for inside work for buildings up to three or four stories with moderate lengths of hose; high pressure—70 to 100 pounds—very effective stream through hose lengths up to 300 feet giving excellent auxiliary service to fire department.

This pressure, 45 pounds, will be employed throughout the calculations in the table given later on.

Fire Streams Supplied by Various Size Mains

In the following table an average pressure of 45 pounds on the system will be assumed as previously noted.

Pipe will be assumed with an average age of four years.

Only four, six, and eight-inch mains are listed.

By an average fire stream we will refer to a stream produced by a 1⅛-inch nozzle and a nozzle pressure of 45 pounds. Such a stream has a discharge of 250 gallons per minute and a vertical reach of 70 feet with a horizontal reach of 67 feet.

Diameter of Pipe	Length of Main—Dead Ended (or fed only from one end)	No. of 250 G. P. M. Streams taken from Fire Engine	Length of Main Between Cross Connections (fed from both ends)	No. of 250 G. P. M. Streams taken from Engine
4 inch	500	2	500	3
4 inch	1,000	1	1,000	2
4 inch	1,500	0	1,500	1
4 inch	2,000	0	2,000	1
6 inch	500	5	500	7
6 inch	1,000	4	1,000	5
6 inch	1,500	3	1,500	4
6 inch	2,000	2	2,000	4
6 inch	2,500	1	2,500	3
6 inch	3,000	1	3,000	3
8 inch	1,000	8	1,000	11
8 inch	1,500	6	1,500	10
8 inch	2,000	5	2,000	8
8 inch	2,500	5	2,500	7
8 inch	3,000	4	3,000	6
8 inch	3,500	4	3,500	5
8 inch	4,000	3	4,000	5

In making up this table a residual pressure of between five and ten pounds is allowed at the hydrant. In other words, when considering friction loss of a system a friction loss of between five and ten pounds less than the supply pressure in the main is

(*Continued on page* 31)

Four Killed as Water Tank Falls

Four workers in the candy factory of Philip Wunderle at Philadelphia, Pa., were killed when a 10,000-gallon water tank on the roof of the four-story building crashed into the basement.

Chief Ross Davis responded with the companies called out on the second alarm to remove the wreckage and to free some of the victims that were pinned underneath the debris. One of

Courtesy, The Philadelphia Inquirer

Walls and Part of the Wrecked Interior of the Candy Factory at Which the Water Tank Collapsed

those who died later was found with only his head uncovered and one arm free. He was pinned down by a heavy piece of machinery, and realizing that he would not live long, he asked for the last rites of the church.

The tank was used to store water for the automatic sprinkler system and it was erected last summer. The building was reinforced at that time to bear the added weight. The water freed from the tank rushed to the basement and made the task of searching for the victims more difficult.

Coffee was served to the firemen rescuers by the Second Alarmers Association and by employees of a nearby restaurant. The police established a safety zone and no one except doctors or firemen were permitted to enter.

Normally the factory is closed at that hour on Saturday afternoon, but in order to meet the many orders for Christmas candy, some of the workers stayed to earn overtime pay. Outside the safety zone, relatives forced their way to the fore in order to seek information concerning their kin.

Fighting a Big Fire With No Water

Small Department Does Good Work Under Big Handicap—Two Hours' Start of Fire Dooms Plant

WHEN it comes to fighting fire under difficulty, the large city department is not in it with the small city fire force.

Handling a fire in a large two story plant, and having around it oil storage tanks, sulphur pits, frame warehouses, and frame dwellings, and add to this the fact that the fire has had a two or three hours' start before being reported, as well as a limited supply of water on hand and only two pieces of apparatus in the department—then what fire fighting under handicap means may be appreciated.

The fire described below occurred in a small city of approximately 5,000 population located in the southwestern part of the country. The equipment of the fire department consists of one 750 gallon triple combination and one 300 gallon triple combination motor pumpers. The property involved in the fire is shown on the sketch. The plant was of two-story brick construction and devoted to work incidental to packing of dried peaches and figs. s shown in the sketch three large Standard Oil Company tanks were located near the plant and directly behind it were sulphur pits, engine room and a large frame warehouse.

The water supply was very poor, there being but two hydrants available at the start of the fire. Both of these hydrants were fed by the same six-inch main although the one near the plant was connected to a four-inch main fed by the six-inch.

The hydrant on the six-inch main was 300 feet beyond the hydrant attached to the four-inch.

Beyond the railroad tracks, a distance of about 900 feet, another hydrant was employed when the fire was found to be making headway. This necessitated a stretch of 900 feet of hose by hand across the tracks and of course imposed a pretty severe task upon the small force of the department.

The Fire

The alarm was sounded at 4:35 A. M., the watchman evidently not being on the job as the fire had probably been burning for about three hours. Both floors of the main building were involved the full length and fire going through the roof when the chief arrived in advance of his apparatus (about 30 seconds).

The blaze was of such intensity that it was making it very hot around the sulphur pits, which upon the arrival of the department were seriously exposed.

As noted above very little water was available and it was necessary when the engines eventually got into operation to use the lines alternately as they could not be used at one time due to the insufficiency of the water supply.

The handling of the fire was as follows:

Two lines were laid at once from the smaller pumper located at hydrant No. 1. These were stretched to the far end of the building, one 2½-inch line to cover the Standard Oil Company tanks and warehouse at that end of the plant and one line was reduced to 1½-inch to cover the frame dwellings which upon the arrival of the department were in serious danger of becoming involved. These lines were charged but were one at a time —while one of them was assisting the other line. In other words, only one line was operated at a time there being insufficient water to supply both at the same time.

The larger engine was sent to hydrant No. 2 and two lines were laid to cover the frame warhouse. Although the chief knew that he would have poor streams, there was no other hydrant available or no other supply at hand for a quick hook up and he needed the water badly. By cutting off first one stream and then the other he was able to save the Standard Oil Company Tanks from loss excepting where the plant wall fell on some drums. The department was able to save the warehouse alongside the sulphur pits although there was only a very narrow runway between this warehouse and the pits.

As soon as the headway of the fire had been checked, the chief moved one truck across the tracks and stretched a 900-foot line by hand across the railroad yards. This line was employed to operate on the platform in the front of the building on which was stored considerable material.

The loss in this fire was approximately $390,000.

When the fire was finally extinguished it was found that the main part of the plant was completely destroyed, the warehouse and storage tanks at one end of the plant were saved as well as the frame warehouse and dwellings on the other side.

Suggestions

It is indeed hard for the Editor to offer any suggestions as to better methods to employ in handling this fire.

Let us first consider the fire itself. The main building was fully ablaze when the department arrived. In view of the limited supply of water and the limited amount of apparatus this building doubtlessly was doomed at the start.

No effective operations could be taken against the fire in this part of the plant.

Then there was the warehouse to the right of the main plant as shown in the sketch as well as the storage tanks. The department did mighty fine work in checking the fire from spreading to both of these, both being saved.

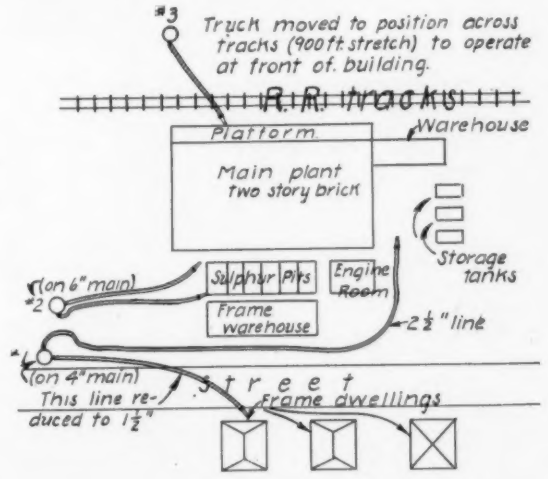
Then to the near side of the plant as shown in the sketch were the sulphur pits, engine room, frame warehouse and across the street, the frame dwellings.

Here again the department did excellent work in holding the fire from reaching the frame warehouse as well as the frame dwellings.

No reference is made as to whether or not the fire extended to the engine room or the sulphur pits.

In view of the work done by the department with the very limited water supply and apparatus it is not likely that the department was able to hold the fire from entering either of these two parts of the plant.

There is a possibility that a little time might have been saved at the start by placing the engine across the tracks and stretching in two lines of 2½-inch hose, if this quantity was available, and operating these two lines to cover exposures around the plant. It was necessary to do this eventually and it might have



been done at the start while the other engine was placed at a hydrant on the six-inch line to take all the available water there was from this pipe.

While this might have resulted in the saving of a little additional property, such a statement is only a conjecture.

There is nothing to offer in the way of suggestions as to how the fire might have been handled more effectively. On the other hand the local chief deserves credit for saving as much of the property as he did under such severe handicaps.

Vandals Work at Poughkeepsie Fire

Theft of many automobile accessories and the loss of a car was reported following a fire in a garage at Poughkeepsie, N. Y.

Twenty-one cars were reported destroyed, and Chief Chris W. Noll, estimates the loss at $35,000. Emergency quarters were established near the garage and many of the firemen were treated for minor injuries and frost bite. A unit of the Salvation Army which is part of the first aid section of the department, furnished coffee to the men, and the same service will be performed in the future at every second alarm fire.

The police are investigating the loss of the car and the missing parts of other automobiles.

NEW ENGLAND FIREMEN ASSIST IN SPREADING CHRISTMAS CHEER

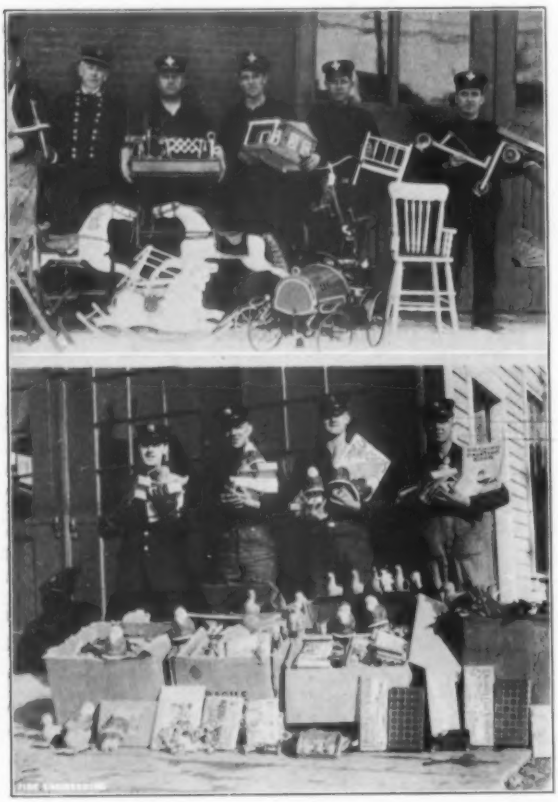
Several Departments Have Parties for Children—Men Repaired Toys for Redistribution to Poor of District

By HARRY BELKNAP.

MANY a child in a number of New England cities was made glad through the activities of the firemen who spent their spare time in making and repairing toys for the children of the district.

Some of these toys are most ingenious. Doll houses, miniature fire stations, circuitous railroad tracks with tunnels and bridges for tiny electric trains to traverse, rocking horses, and sleds are a few of the numerous things that are fashioned by the firemen in the workshops at the fire stations.

This season the members of Hook and Ladder Company No. 8 and Engine Company No. 25 at Fort Hill Square in Boston



Upper, Toys Made by the Firemen of Brockton, Mass. Lower, Some of the Braintree, Mass., Firemen and the Toys That They Distributed to the Children

turned out some remarkably fine toys, the houses and scenic railways being most skillfully made with every object perfect to the minutest detail.

Chief Fred A. Tenney, of Braintree, Mass., and his firemen provided a Christmas tree and gave a party for boys and girls at which seven hundred gifts were distributed. The money for the celebration was raised at the firemen's field day last summer. Each child received a bag of candy, an apple, an orange, and one or more other gifts.

Up in Brockton, Chief William A. Daley and the members of his department were busy as usual making toys and mending old and broken playthings that were donated. The Brockton Women's Club had general charge of the distribution of the toys to children of needy families and many a youngster who would have had a cheerless Yuletide because of the parents' inability to purchase presents had a visit from Santa Claus, thanks to the firemen.

Chief Michael McPhee, of Lawrence, also was the leader in getting a large number of toys made ready by the firemen for distribution on Christmas Eve. Through the social service committee of the Lawrence Community Council, mothers and fathers were asked to bring old, broken, and discarded toys to the nearest fire station where the firemen would make the articles once more attractive and desirable as gifts to delight the hearts of poor children of the neighboring districts.

Capt. Edward F. Howard, drill master of the Lawrence department, assumed charge of the toy repairing brigade and under his direction hundreds of damaged toys were made as good as new. Nurses in the Lawrence General Hospital volunteered to help the firemen out by making dresses for the dolls.

The completed toys were placed on exhibition in two store show windows prior to distribution. Fully a thousand school children received gifts from the Lawrence firemen.

Several other cities and towns in New England were gladdened at the holiday season by the efforts of the firemen to make Christmas "the best ever" for the boys and girls of the community.

ATTEND THESE MEETINGS!

Arrangements have definitely been made for a trip by the Officers and Directors of the International Association of Fire Chiefs to embrace all parts of the country for the purpose of getting the cooperation of existing sectional and state chiefs' associations and to organize new chiefs' associations in sections of the country where none exist. The object is to carry these associations into the International body, with the membership in each case joining as a whole.

The schedule of this trip will be as follows:

Jan. 12. Dallas, Texas.—To complete organization of the Southwestern Assn. of Fire Chiefs started at the New Orleans Convention.
Jan. 14. Atlanta, Ga.—to organize Southeastern Assn. of Fire Chiefs.
Jan. 17. New York,—to organize Eastern Assn. of Fire Chiefs.
Jan. 18. Orange, N. J.—to attend quarterly meeting of N. J. State Fire Chiefs Assn.
Jan. 19. Boston, Mass.—to meet with New England Chiefs.
Jan. 22. Hull, Quebec,—to meet with Directors of Dominion Chiefs.
Jan. 24. Chicago,—to organize Great Lakes Chiefs Assn.
Jan. 25. Kansas City,—to organize Missouri Valley Assn. of Chiefs.
Jan. 28. Portland, Ore.—to hold regular Directors meeting to arrange for Convention.

The officers are anxious to have all chiefs in the vicinity of any of these meetings make arrangements to attend.

Massachusetts Chiefs' Club Meets

The Fire Chiefs' Club of Massachusetts held the December luncheon and meeting on December 15 in Young's Hotel, Boston.

President Patrick J. Hurley, Chief of the fire department of Holyoke, Mass., presided. The members stood at attention as a tribute to the memory of their departed comrade, the late Chief Robert Browning, of Central Falls, R. I.

Among the subjects discussed were the standardization of hose couplings and uniform standpipe connections; hazards of advertising signs on the roofs of buildings; regulations for oil burner installations; and explosions of an undetermined nature in garages. P. E. Charnock, engineer of the New England Insurance Exchange, read a paper describing the progress of the hose coupling standardization work in the New England States.

Among those who took part in discussion on various topics were Chief Daniel F. Sennott, of Boston; Chief Edward F. Dahill, of New Bedford; Chief James M. Casey, of Cambridge; Chief Sewall M. Rich, of Somerville, Chief Charles L. McCarthy, of Worcester; Ex-Chief A. Howard Fiske, of Framingham, and John Caldwell, of the New England Insurance Exchange.

Announcement was made of the election to active membership of Chief Ricker, of Biddeford, Maine. HARRY BELKNAP.

Modern Fire Alarm Signalling

Auxiliary Telephone Systems—Description—Some of the Common Troubles and Remedies

By E. W. KEIRSTEAD, E. E.

THIS is the seventeenth of a series of articles on the care, installation and repair of various phases of fire alarm work. The author has had practical experience in this field, and he will answer questions on this subject that are submitted to him by the readers, free of charge. The only condition is that a stamped envelope must be enclosed for reply.

Description

There are several different methods now being used in the various Fire Departments in reference to communication between the aid or chief at the box and central headquarters. Use is made of telegraphic, code, and telephonic messages. The old method was to use the telegraphic key in the box in accordance with a prearranged set of signals. This enabled the chief to call for individual pieces of apparatus, ambulances, and other units required without putting in a second alarm or a so-called two bagger. In the larger departments they were making use of the regular type telegraph sounder with good results and this method is still being used very extensively with a fair measure of success.

Fig. 47

The only thing necessary to successfully operate these systems, was to memorize the code calls or the Morse telegraph code. This meant that a great number of special calls had to be memorized and any change in the running card or department had to be noted. In the telegraphic system of communication, the deputy or chief's driver was as a rule the man who did all the communicative work between headquarters and the chief at the scene of the fire. Most of the large departments have a school where these men are trained in telegraphy; this meant that a good deal of the man's time was at first spent in schooling. The method was also slow as there was not very many mistakes in transmission or reception allowed by the departments.

This article is to present a detailed account of the latest and most up-to-date system of communication between headquarters and the different engine houses and the scene of the fire. It is called the Auxiliary telephone or fire alarm circuit telephone. It derives its name from the fact that it is in reality an alarm circuit telephone and it is worked on the same pair of wires as that on which the alarm boxes are placed. It is a very satisfactory system, accurate and very easily serviced. Its initial cost is practically the only cost incurred and the apparatus will harmonize with the rest of the office in every respect.

Operation of the System

The system is worked on the drop of the line, that is, if the line is lowered from one hundred milli-amperes to eighty milli-amperes the auxiliary telephone feature will operate. This will not, however, allow the rest of the alarm system to perform its operation. The drop necessary to operate the relays on the telephone feature is accomplished by inserting a resistance in the line at the box or engine house end of the line. This lowers the current on the line to the value desired—80 milli's. The tappers, registers, gongs or repeater will not operate at this value and it is necessary to drop the line to about 65 milli's to set the alarm feature in operation.

If while the line is being used for telephonic purposes an alarm is pulled on the same circuit, on any box, the alarm feature will work and cut out the telephone thereby allowing it to be restored at the end of the signal.

A special telephone lineman's type transmitter and receiver is used on this system in which is contained the resistance unit in addition to a press type switch. This unit is compact, light and finished in nickel plate. There are a set of brass push type jacks installed in every alarm box into which the tip ends of the hand set are inserted.

The pedestal is installed in the central office. It is of the turret type containing a battery of small signal lamps—one for each circuit—and a common buzzer which operates on every circuit alike. The turret also contains a set of closed circuit jacks and a set of open circuit jacks for each circuit, two common listening jacks, a buzzer cut out switch, and a double way listening switch. In the interior of the turret are mounted the resistance units and relays. There is also a common signalling key supplied which can be mounted on the turret or panel as is desired. This makes up the whole unit with the necessary parts to work this feature.

In figure No. 47 a turret type pedestal is shown giving you an idea of its construction and size. They are generally made up in an art metal cabinet, the panel of the turret being made of either slate or marble, as desired.

A unit is installed in each engine house consisting of a buzzer or gong, calling key, ringing box and telephone. The telephone is of the regular Western Electric type and all other parts are of standard make.

Installation of System

The first necessary change to make in placing an auxiliary telephone unit in the system is to install the jacks on the terminal plates in the alarm boxes. This comes first as the jacks may be terminal plates in the alarm boxes. This comes first as the jacks may be installed without in any way interfering with the workings of the present system.

First the box is cut out of the main line in order to work on it without sending in any stray blows. The terminal block must be taken out and the two top screws holding the terminal plates on either side must be taken out and longer ones substituted. These will project about three-sixteenths of an inch above the surface of the terminal plate. The jacks must be placed and screwed up tightly. Care should be taken to see

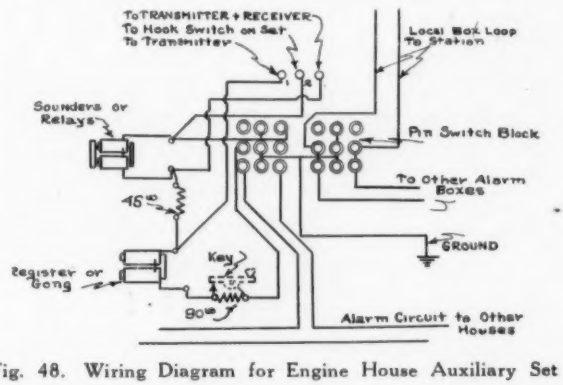


Fig. 48. Wiring Diagram for Engine House Auxiliary Set

that all the wiring is returned to its proper place in the box, and the block is then screwed back into place. The jumper wire is now cut and the box returned to service. All the boxes are treated in the same manner until they are all equipped with jacks.

The engine houses are next taken care of. All the equipment will be placed in readiness to be cut into service when the central office apparatus is installed. The equipment can be installed on a panel or on the watch desk as is desired. In figure No. 48, is given the wiring diagram for the engine house layout and the apparatus can be hooked up and lines carried to the point of entrance of the alarm circuit, and left to be cut in when the central office equipment is all installed.

The central office pedestal is next set up and care should be taken to select a proper place for installing it. The pedestal should be near the telephone board or the transmitters so that one operator will be able to operate the units easily. It should

be set square and shimmed up if necessary. The unit will be assembled in itself when it arrives, and it is only necessary to run in the various wires from the different boards. A blue print will be furnished with the turret pedestal and all wiring should be placed as shown in the print.

For illustrative purposes, a diagram, Figure No. 99, is shown here but it should not be used to place a unit in service. It will be possible, however, to study this print and learn how this system would be placed in your circuits. Practically every city has different types of apparatus in their systems, and all this must be taken into consideration. It is, therefore, impossible for me to give a print that will be adaptable for each case. The wires are all placed on the various circuits according to the print you receive, and I would advise that you double ring them when installing as it will save you a splice. In fire alarm work splices are to be avoided as much as possible. If your office is not yet in service, it will be a very good idea to have some one go to the first terminal and call in on every circuit and give it a good test before placing it in service. If your office is already in service after you have hooked up the leads as shown in the print, make sure that your battery is in good condition and properly charged. Have a man go to a box on every circuit and call up the office; a note should be

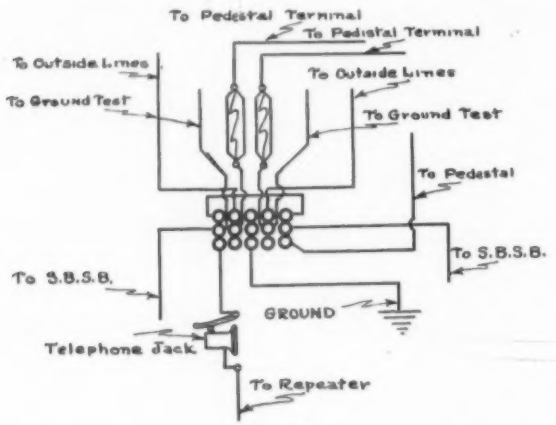


Fig. 49

made of the reception on every box tested. After you are sure that all the box circuits are operating properly go to the engine houses and cut in the apparatus there on the line making sure to splice in before cutting your loops.

After all the system is hooked up, test it out and note its operation. It should work perfectly, but in case of trouble look on the list of troubles tabulated further on in this article. There are the directions for operating the unit in the next chapter and they should be adhered to in order to get the best results. There are a few set rules and they should be obeyed or the device will be inoperative and cause trouble. The system will not give as good results if the alarm circuits are installed on poles where the power lines run parallel to the circuits as there will be more or less hum on the apparatus. If the lines should parallel the power lines it will be a good idea to have the circuits transposed about every half mile or so. This will take off very much of the hum.

Operation of the Unit

The chief's aide, arriving at the box on an alarm, is stationed there to inform the headquarters of the chief's demands and needs. He carries the hand set with him and waits at the box for orders, etc.; he may be with the chief at the fire itself until such time as the chief finds it necessary to call an additional unit in the department. The man at the box plugs his hand set into the jacks and at the same time pushes in the hand switch on the hand set and taps in several blows on the box key. At headquarters the signal is received by the operator who notes the flashing light and the buzzer signal. He plugs in one of the jacks into the bottom row of holes, throws up the listening key, and talks to the man at the box. He receives message and places the other jack in the jack hole on the circuit of the engine company desired; the operator then taps out the company's number and the company's man on watch answers and talks to the operator or the man at the box.

This unit is very handy where a few companies are wanted and where it is not desired to send in a second alarm. It enables the man at the box to ask for the companies wanted and to give accurate information as to where the fire actually is located. This a very important thing when a company is answering an alarm in another district as the company commander will then know about blocked streets, what hydrant to take and what floor to operate on.

This is especially handy where the telephone to an individual engine house is out of order, as it gives the company a reserve means of communication. A box may be pulled to get assistance for a person drowning. By this means it is possible to get the rescue squad in a hurry.

In houses where several companies are located, it may be necessary to get hold of two companies at the same time with different orders—the regular telephone can be used and the auxiliary in addition. In a case where two fires are in progress at the same time, it is possible for the chief to talk to his deputy and give him aid and advice without leaving his own scene of operations.

Linemen out testing lines will rely on it for directions and it will save a lot of trouble and discomfort on a cold night by allowing the men to receive accurate detailed information which would be impossible otherwise. It does not in any way interfere with the regular operation of the system, the boxes being pulled will come in just the same as before.

Special Instructions on Operation

When you plug in your hand set be very sure that you push in the little flat switch on the side before you tap in a signal on the key in the box. Failure to do this will result in a series of blows being sent into the office.

Be sure that you plug in the set so that it makes a good connection before tapping in the signal as failure to do this will result in a stray blow.

Be sure that you always keep your line current up to 100 milli-amperes as it is very necessary for the system to operate properly.

Be sure that you have your lines free from all grounds at all times as the current of the line will be lowered enough to give your system a steady signal, and yet will not open the line and allow the alarm apparatus to function.

Be sure that you always have the buzzer switch in a working position so that you will receive an audible signal as well as a visual one.

Be sure to have all plugs removed from the jacks after you are finished with the connections so that you may quickly secure new connections.

Be sure that you have your listening switch in position when you are trying to talk as failure to do so will not give a connection.

Be sure that all key guards are in place when not in use so that no signal will be made that is not wanted.

Do not be alarmed when with an automatic station, all the lights light and the buzzer works on an alarm, as this is natural. They should, however, go out when the alarm is completed.

Do not change the adjustment of the relays to correct a fault caused by a ground on your lines. Remove the cause.

Make tests at certain periods to see if your lines are clear.

Do not use the system for personal business as some one may need it very badly and find it impossible to get a connection. Give it the same service you do the rest of the system.

If the system is given good service, there will not be many troubles with the auxiliary feature, but the rules set down in the previous chapter must be adhered to or a great deal of trouble will result. The system will naturally be dependent on the box and alarm circuits, and if they are maintained in good shape they will give little trouble. The following troubles are mostly found, and the remedies are outlined.

TROUBLE.—One or two circuits give a signal but no one is on the line, and a signal has not been sent in.

CAUSE.—Battery is weak or run down on the circuits that are giving the signal.
Adjustment of the relays have been changed.
Heavy grounds on circuits giving the signal.

REMEDY.—Build up battery or take out resistance in line by means of line resistance switch.
Adjust relay to proper adjustment and leave it there.
Test for grounds, if found take resistance out of the circuit by means of the resistance switch. Clear lines of grounds at earliest moment.

TROUBLE.—All lights light and buzzer gives signal.

CAUSE—Alarm coming in and repeater opens each circuit causing all lights to work.
Batteries have been left on line too long and are low.
Heavy ground on the terminal board.

REMEDY.—None.
Change batteries to charged set.
Remove ground and test to make sure condition is remedied.

(*Continued on page* 40)

New Rules of the New York Fire Department

This Fifth Installment Covers Building Inspections, Charges, Suspension from Duty and Courtesies and Salutes

FOLLOWING is the fifth installment of the "Rules and Regulations of the Uniformed Force of the Fire Department of the City of New York," just issued by that department, and which are to be published serially in their entirety in FIRE ENGINEERING. *This book has been compiled and edited by Captain John J. McCarthy, of H. & L. No. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters, who worked under the personal supervision of Chief John Kenlon. This installment includes sections covering building inspections, charges, suspension and part of the rules devoted to courtesies and salutes:*

Building Inspections

SEC. 126. The inspection of buildings shall be conducted in accordance with instructions contained in the order referred to below. It shall be carried out on a systematic street by street and block by block basis, the work in one block or street to be completed before another is entered.

SEC. 127. Members assigned as Inspectors shall familiarize themselves with the condition and construction of all buildings, note all violations or dangerous conditions, secure the correction of minor violations by verbal order, as directed in General Order No. 7, 1914, and report to their commanding officers.

SEC. 128. Theatres shall not be inspected during performances, except by Theatre Inspectors, Chiefs of Battalion as ordered, and by members directed by officers receiving complaints of overcrowding.

SEC. 129. The following extracts from G. O. 7, 1914, constitute the basis of all building inspections to be made by members of the uniformed force.

In order to provide all possible protection to life and property against fires, and to co-ordinate the work of the Bureau of Fire Prevention and the uniformed force of this Department, a careful inspection shall be made monthly of all buildings in this city, except private residences. These inspections to be made either by officers, engineers of steamer or firemen of the first grade.

All officers, engineers of steamer or firemen of the first grade, making such inspections shall be required to notify verbally all owners, agents or superintendents of buildings where conditions may be found justifying such notice, to remedy all defects found to exist in standpipe equipment, such as defective siamese couplings on the outside of buildings, or defective couplings on the inside of buildings; to replace missing or broken signs on standpipe lines and to remedy any misplacement of check valves or improper connections to roof tank; to remove immediately and to keep the premises clear of all accumulations of rubbish, such as cloth and cotton goods clippings, broken boxes, excelsior, and inflammable waste of all kinds; to refill fire water pails where such are found to be empty, and to have all such pails accessible and ready for instant use in case of fire; to repair defective fire doors when broken or improperly hung; to change stove pipes where such pipes are not properly secured in passing through wooden partitions; to unlock or have the bolts withdrawn where doors are found to be locked or bolted; to clear aisles leading to fire-escapes where said aisles are found to be obstructed; to display conspicuously "No Smoking" signs in places where such signs are required; and to discontinue smoking in all places where smoking is prohibited.

Officers, engineers of steamer and firemen making inspections are required to secure proper legal evidence where doors are found to be locked or bolted, and where smoking is being done in violation of law.

Company commanders shall keep a correct record in company quarters of all verbal notifications given in pursuance of this order, entering the full name of persons to whom notices are given, the number of the building and the conditions which resulted in such notifications.

Inspections made in pursuance of this order are to be confined to the matters specifically enumerated herein, except that any unusual or dangerous conditions shall be immediately reported.

SEC. 130. Company commanders shall cause inspections to be made upon written reports and complaints transmitted to them through regular channels.

If upon inspection the dangerous condition complained of is found no longer to exist, the report or complaint shall be returned, through regular channels, marked in ink "No cause for complaint," with the date of inspection, signed by the company commander.

If the condition is one which can be corrected by verbal notice, such notice shall be given to the person concerned.

If upon the next regular inspection the verbal notice is found to have been complied with, the complaint or report shall be marked in ink "Personally abated," and forwarded through regular channels, signed by the company commander, with date of inspection.

Should the second inspection show that the verbal notice has not been complied with the complaint shall be returned, through regular channels, with violation form.

When the violation involves structural changes for which the owner of the building is responsible, Form A shall be used. If the violation relates to matters for which the occupants of the building are responsible, Form D shall be used. If there are violations affecting both owner and occupants on the same premises, both forms are to be used and the sheets fastened together and numbered.

Every report of an unusual or dangerous condition, rendered by a company commander, shall be on Form A or Form D, as conditions require, with recommendations in each case.

Charges

SEC. 131. Charges, in writing, shall be preferred against any member of the Department who violates, or is alleged to have violated, these Rules and Regulations, or any law, order or instructions governing the uniformed force.

SEC. 132. Charges shall be signed by the immediate commanding officer of the accused, who shall also appear as a witness.

SEC. 133. When not a witness to any violation, commanding officers shall receive, and promptly investigate complaints of alleged violations by members under their immediate command. They shall require the complainant, when not a member of this Department, to furnish an affidavit of complaint. Written charges against the accused shall then be prepared and signed.

SEC. 134. Charges may be preferred by one member against another, or by a civilian against a member.

SEC. 135. When charges originate outside of the command of the immediate superior officer of the accused, they shall, in all cases, be accompanied by a complete report of the complaint, the result of the investigation, and the action taken. The affidavit form of complaint, signed by civilians, shall accompany charges.

SEC. 136. Officers preparing, or receiving charges shall see that they are properly drawn and contain the names and addresses of witnesses whenever possible. They shall be investigated promptly, and be forwarded, through regular channels, endorsed with their opinion that the charges can or cannot be sustained. Intermediate officers shall forward charges without further expression of opinion, unless such officers have a personal knowledge of, or are involved in, the case.

SEC. 137. Charges shall be forwarded within 24 hours after the occurrence of the alleged violation, unless unusual circumstances encountered in conducting the investigation prevent. Under such circumstances, a report shall be forwarded to the Chief of Department giving full details, within the 24 hour period specified.

SEC. 138. Members shall not, under any circumstances, withhold or suppress charges.

SEC. 139. Charges shall cite the law, rule, order or instruction violated, and shall be followed by the specification, or number of specifications, of the acts and circumstances, with dates, time and places connected therewith.

Specifications shall be arranged numerically.

(See appendix)

SEC. 140. A separate form shall be used for each distinct charge. When there is more than one charge, the forms shall be numbered, Charge No. 1, Charge No. 2, etc.

SEC. 141. Members of the Department to be tried on charges shall be served with a copy thereof at least 48 hours before trial, exclusive of Sundays and legal holidays. Notice for members to appear as complainants or witnesses may be sent by telephone to their respective commanding officers, who shall promptly transmit such notice to the members concerned.

SEC. 142. Service of copies of charges and specifications shall be made as follows:

a. By personal delivery.

(Continued on page 32)

NEW YONKERS FIRE HEADQUARTERS TO COST NEARLY HALF MILLION

Fire Resistant Throughout—Will Have Drill-Tower Feature, With All Modern Appliances—Open-Air Gym and Recreation Room

THE new fire headquarters for the city of Yonkers, N. Y., will be one of the finest buildings for fire protective purposes in the country. The building covers an area of 9900 square feet and will contain, on the apparatus floor, space for two extension ladder trucks, two engines and the chief's and assistant chief's automobiles.

Chief James J. Mulcahey, Yonkers, N. Y.

On the second and third floors there will be dormitories, each accommodating 25 men, with separate rooms for the chief, assistant chief, clerk and nine officers' rooms.

The fourth floor provides a large open air gymnasium, with mesh sides and roof. a large recreation room, with library and reading room. A very desirable feature is an instruction room, with black-boards. equipment for picture projection, and other class room features.

The second and third floors contain ample locker rooms and wash rooms for men and officers. In each officer's room there will be a lavatory, while the Chief and Assistant Chief have an additional toilet and shower.

The apparatus floor has a public and private office, with a cafeteria for men on duty. The cafeteria will be equipped with gas ranges, electric refrigerators and kitchen cabinets complete.

From the street there is a motor driveway to basement, so that engines or other apparatus may be driven to basement for repairs or adjustments.

From each of the floors above the apparatus floor, including open air gymnasium, there will be four sliding poles, giving complete service from every portion of the building.

Practice Wing and Drill Tower

A very marked feature of the new building consists of a five and six story wing attached to the building, for practice purposes. This tower portion has rooms and interior iron stairway and an outside fire escape.

The rooms and stairs may be smoke filled. so as to provide actually working conditions, the tower being used for scaling ladder practice. It is the intention of Chief James J. Mulcahey to have every man in the department pass periodical tests so as to keep the efficiency at the very highest mark.

The construction of the building is all that could be desired.

The foundations are of concrete with concrete and steel beam floor construction; the upper walls of brick with hollow steel sash and wired plate glass throughout. The open air gymnasium will have a tile roof. All the public and private shower and toilet rooms are to have tile floor and side walls. The cafeteria will also be fully tiled.

The main apparatus floor to have impervious brick floor, while the side walls are of two-tone glazed brick. The public and private halls throughout to be terrazzo, while the main stair hall is to have marble wainscote. All the doors, trim, base throughout to be of metal, grained to imitate mahogany, and all walls to be finished and painted in two-tone decoration.

Excellent Heating and Lighting Equipment

The building will be heated by a vacuum steam system, the boilers being heated by an oil burning apparatus. The electrical equipment to be of the very finest that can be procured, the alarm signals entering through underground conduits and operating signals at lieutenant's desk and in dormitories and officers' quarters. The lighting system will be very thorough, with provision for throwing spot lights on open air gymnasium.

The floors of the sleeping quarters to be of wood, and with this exception, no wood of any kind will be used in the finished building.

Cost of the Headquarters

The architect, H. Lansing Quick of Yonkers, estimated the cost of the structure, without equipment, to be $325,000. Owing to the quality of material used in the structure, it will be an investment that will last for years, giving constant service throughout its life. The contract has just been awarded at $223,000.

Cooperation of City Officials Made Building Possible

This very fine addition to the Yonkers Fire Department has been made possible by the cooperation and endeavors of Mayor William A. Walsh, Commissioner of Public Safety William D. Cameron and the Board of Aldermen, in providing such a magnificent structure and for their keen perspective of the necessity for maintaining facilities to train the firemen and maintain a high state of efficiency that has ever prevailed in the department.

Architect's Drawing of Handsome New Fire Headquarters Building for Yonkers, N. Y.

Safeguarding Old Residential Type Buildings

Vertical Type Ladder Fire Escape Valueless in Case of Fire—Protecting the Stairwell by the Use of Metal Lath

By ERWIN M. LURIE*

WHILE new legislation may be passed that will tend to decrease the fire hazard in new buildings, the old type of buildings that are then standing continue to be serious life hazards in case of fire. By using metal lath to protect the vertical openings, the author states that a great deal of the hazard may be removed.

Unprotected Wooden Stairways Often Trap Many

There are hundreds of thousands of these old style of residential buildings now extant throughout the country. They were built in the days before there was much common knowledge on the subject of fire prevention. That which there was, concerned itself chiefly with protection against external hazards, consequently, most of these buildings have masonry exterior walls, because it was the general impression that the greatest danger was from fires originating outside the building.

Interior protection was almost, if not entirely, neglected. Open elevator shafts enclosed merely by ornamental iron grilles, long unlighted corridors leading to only one means of exit, unprotected interior stairways in many cases adjoining the open elevator shaft, most of these plastered on ordinary lath with wood wainscoting are the rule of this type of building. Electric wiring in those days was in its infancy and the modern requirements for enclosing in conduit were unknown. The wide spread use of electric household devices such as toasters, electric irons, vacuum cleaners and washing machines was barely dreamed of and hardly prepared for.

Convenience outlets in such buildings are few, if any, but every tenant and owner of such a building considers himself a fairly satisfactory electrician and proceeds to remedy these oversights of architects and builders of the past. Consequently many fires today are traced to attempts made by such amateurs to connect present day electrical necessities to wiring service never intended to carry the load. Inadequate and unprotected wiring are used. Sometimes when protecting fuses don't function as the owner thinks they should he dispenses with them altogether.

Chimneys were frequently built with brick on edge without a flue lining; smoke pipes from basement heating plants were built close to unprotected wood joists, wood ceiling, or wood lath and plaster. The tops of furnaces and boilers were permitted to reach within a few inches of the joists overhead. Spontaneous combustion was a new phase and soft coal is today still being stored in bins constructed largely of wood boards. Plaster was frequently applied on wood furring and attached to unlined fireplaces; unprotected hot air pipes were permitted to run through the entire building in hollow spaces between wood studs and joists. No consideration whatever was given to the now well known subject of "Fire Stopping."

As for means of egress in the event of fire, the old time hazardous ladder fire escapes, quite uniformly mandatory by building regulations throughout the country, still exist as the only means of escape on countless thousands of buildings. As we all know, even these installations were fought tooth and nail by all manner of organizations of property owners so that when civic interests finally won it was only after considerable compromise with the minimum requirements. Thus many fire escapes which were erected to comply with such requirements are merely a sham placed opposite unprotected window openings where flames shooting out from windows below might easily cut off escape.

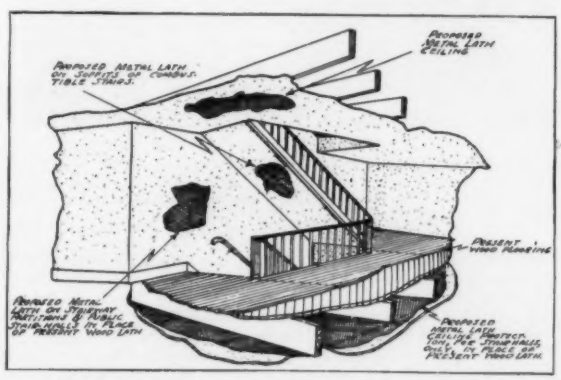
Interior Stairway Dangerous Hazard

We are even less surprised at the great loss of life in buildings of this type of occupancy, because the most accessible and therefore, logical means of escaping fire, the interior stairway, usually has shown itself to be a dangerous fire hazard, because of it being completely surrounded by highly combustible materials. Data of the Committee on Statistics and Origin of Fires of the National Board of Fire Underwriters indicates that after eliminating the fires which are communicated by burning roofs, considerably over 90 per cent of the remainder are of interior origin.

What then is being done to safeguard the occupants of the several hundred thousand residential type of buildings scattered throughout the country, which the owners feel they cannot afford to remodel, and relative to which building codes are so often silent, because most codes when adopted apply almost exclusively to new construction? Building officials, rather than increase the ranks of those opposed to a new code by adding owners of existing buildings to the opposition are forced to confine their efforts largely to new construction.

Access to the ladder was, and still is in many cases, almost impossible and our Fire Department records are replete with instances of lives lost because of barred doors and lack of familiarity with the location of the fire escape. Moreover, those who are fortunate to reach it are frequently cut off by flames from unprotected window openings below. Thus one will frequently find that the most hazardous place in the building is the fire escape itself. Furthermore a large number of state codes require fire escapes only in buildings four stories or more in height, so that the people who choose to live in an old three-story tenement are plainly out of luck in the event of fire.

In some states hotels are required to provide rope escapes down which the guest may slide if thoroughly awake to the danger and if possessed of acrobatic instincts. Ladies and children should practice coming down hand over hand or else be sure to wear pajamas on nights when fire is imminent. Outside of the above two features, which have been designed to promote safety to life in these types of buildings, there are relatively few instances where laws have been enacted to require the owners of such old buildings to provide adequate protection excepting in those cases where non-fire-proof buildings have been remodelled for tenement and hotel occupancy.


PROPOSED METAL LATH CEILING
PROPOSED METAL LATH ON SURFACE OF CONCRETE STUDS.
PRESENT WOOD FLOORING
PROPOSED METAL LATH ON STAIRWAY PARTITIONS & PUBLIC HALLWALLS IN PLACE OF PRESENT WOOD LATH
PROPOSED METAL LATH CEILING PROTECTION FOR STRUCTURAL ONLY IN PLACE OF PRESENT WOOD LATH

A Suggested Means of Removing the Trouble

Perspective drawing showing the use of metal lath and plaster around and on the under side of stairways and on partitions surrounding the stair hall.

We all know what happens when people attempt to escape down the stairway and I am calling your attention for the moment to the very serious loss of life in New York old-time tenements and in particular the fire at 514 East Fourteenth Street, New York City, which occurred on December 15, 1925, and in which five people lost their lives. The building had a fire

* Civil Engineer, Associated Metal Lath Manufacturers. Extracts from paper presented at the Building Officials' Conference, Columbus, Ohio.

escape, and had but one interior stairway all surrounded with wood lath and plaster, which burnt out and absolutely cut off all escape.

Sprinklers Not Suitable

There are three oustanding methods of safeguarding these old buildings, which will be discussed in turn. They devolve respectively on the use of sprinkler systems, of improved external facilities consisting of stairway fire escapes, exit stairways and smoke proof towers, and third upon the improvement of the internal means of egress, effected by remodeling the interior construction so as to confine the fire to its place of origin and to make the interior stairway a safe exit.

Sprinklers: The wonderful record made by automatic sprinklers has been written large across the pages of fire protection annals, those of the insurance companies and in even a larger measure, in the safeguarding of industry. Thousands of lives have been saved because the incipient fire in an industrial plant has been controlled before it could gain material headway. It has also insured the continuation of businesses, both large and small, which might be wiped out entirely causing great distress to entire communities whose livelihood is dependent on them.

Exterior of Building in Which Five Lost Their Lives

The exterior of a tenement building in New York City in which several lives were lost. The vertical type of ladder fire escape are used on the damaged and adjoining building.

In the past 40 years it is conservatively estimated that 40,000 fires have been controlled by automatic sprinklers representing an economic savings of fully $5,000,000,000 to which might be added millions of dollars as a reasonable estimate of the economic value of the human lives saved to society.

However, it is important to note that although sprinkler pipes and sprinkler heads are not objectionable in industrial installations, they might be considered as disfiguring in apartment and hotel occupancy. Moreover, the advocates of sprinklers do not favor their installation when they are not supervised. Fire statistics reveal numerous cases of severe losses when unsupervised sprinklers were used due to the non-dependability of the human element, which must be relied upon to make effective this type of sprinkler. Being less expensive in first cost, it would undoubtedly be the one most likely to be installed in such types of buildings. Because of their greater cost it is doubtful whether legislation could ever be enacted which would require general installation of the supervised automatic type in residential occupancies.

For the reasons stated, it would seem that the use of sprinklers in residential types of buildings would in general be limited to basements where undoubtedly there is the greatest fire hazard.

Fire Escapes and Stairways

Stairway Fire Escapes: The second suggested method of improving the exit facilities of old buildings is to substitute stairway fire escapes for ladder fire escapes. This is undoubtedly an improvement, especially where there is largely women and children who have a fear of ladder escapes. However, the difficulty about expecting that the stairway escapes will solve the matter is that to make them effective they must be so located at the end of a corridor or public hall so that everyone will have opportunity to make use of them. This would undoubtedly entail considerable modeling and re-location—in many buildings a practical impossibility because of the lack of suitable areaways or offsets in the building which would accommodate them. Although owners of *factory* type of buildings might be required by law to remodel their buildings to accomplish this end, it is very doubtful that public opinion could ever be aroused to the extent of having this required on residential types of buildings.

Outside Exit Stairways: A considerable improvement over the stairway fire escape is the outside exit stairway connected to each story by means of an approved self closing fire door and incombustible balcony. Here again we meet with the same difficulty as with the stairway fire escape in that to be effective there must be considerable reconstruction of the building and rearrangements of the rooms. The requirements of the National Board of Fire Underwriters state "All wall openings within ten feet of such stairs shall be protected by approved self closing fire doors on doorways, and automatic or fixed fire windows on window openings. No riser on such stairs shall be nearer than four feet to any such wall opening, except to doors giving access to the same."

The impossibility of placing these outside exit stairways so that they will not be in front of or over windows must always be taken into consideration, and when this cannot be done, some other means of egress must be developed.

Smokeproof Towers

Smokeproof Towers: Undoubtedly one of the most efficient means of external egress from a building is the smokeproof tower, for regardless of what happens within the building itself the occupants have a 100 per cent safe means of exit. Once off any particular floor they can descend through the stairway without leaving the stair tower until discharged safely into the alley or street. As a matter of fact, in order to get into the stairway they must actually leave the building itself, as such smokeproof towers are usually constructed either with outside balconies of steel or masonry or with vestibule entrances connecting either to one or two buildings. Normal requirements are that there shall be no opennigs in any wall separating the stairway from the building, but fixed or automatic fire windows sufficient for lighting purposes may be used providing they are not subject to fire exposure hazards by the same or nearby buildings. The balcony or vestibule is usually provided with a solid incombustible floor and with steel railings not less than four feet high. Another advantage of the smokeproof tower is that it provides a protected position from which firemen can attack a fire on any floor.

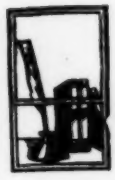
One reason why the enclosed stair tower is not in greater vogue is because it is seldom required by law and furthermore, it is a difficult thing to sell the idea to law-makers; it is not so hard, of course, when it comes to requiring them on new buildings but almost insurmountable obstacles seem to present themselves when they are recommended for old buildings. When built into the original walls of the old building they require an almost complete rearrangement of corridors and rooms.

Improving Interior Stairways, Corridors, Etc.: The third method of providing adequate protection for these old buildings is by improving the internal means of egress. It is quite generally agreed that the interior stairway is the most logical avenue of escape in the event of fire, and this, of course, is natural as the means of entrance would be the first to suggest itself as the way out in the event of fire; and, in improving the internal means of egress we should naturally expect that an important part of our job would be to devise construction which would accomplish the confining of the fire as well as improvement of exit facilities.

Fire quickly broke through the building illustrated and made the stairways an inferno. Tests made by the Underwriters' Laboratories at Chicago indicate that fire will break into the hollow space of a wood lath and plaster partition in about four minutes' time. Having penetrated, it creeps through the un-fire stopped hollow spaces feeding upon the hundreds of roughened

(*Continued on page* 36)

WITH THE EDITOR



1927 Fire Prevention Year

The International Association of Fire Chiefs is starting the new year with a drive which will dwarf previous efforts to reduce fire loss. Appreciating that fires occur 365 days of the year, efforts to check fire will likewise be extended over the same period.

A good start is the task half finished, according to an old adage, and if this can be applied to the work of the association, a great deal has already been accomplished toward the goal which the International organization has chosen.

During January and subsequent months there will appear on billboards in 1,500 cities throughout the country the message of the International Association of Fire Chiefs to make 1927 a fire prevention year. This is only the first step in coordinating all available forces to bring before the public the subject of fire safety.

Here are some of the plans that are included in the schedule of work for 1927 as laid out by the association officials:

It is planned to divide the country into eight sections, and to form district organizations, each district to include in its boundaries several states. Each will have its own officers and headquarters, but will function as a part of the International Association.

Moving Pictures and Slides will play a large part in the campaigns. Besides the showing of Fire Prevention Films slides will be displayed continuously in moving picture houses throughout the country. These slides will be made up in sufficient quantities to cover chosen theatres in each city, a different slide for each week of the year.

Fire prevention talks are planned by the association. These may be divided into two classifications: (*a*) Talks by fire department officers before schools, illustrated, if possible, by lantern slides; (*b*) by chiefs before commercial organizations, to emphasize industrial and business fires, including data on some bad fires.

Calling public's attention to fire prevention through the medium of the daily press. This press service to be furnished by the association to chiefs, who will pass it along to the local dailies. It may be possible to arrange with the daily to run a fire department column once a week. Information to be of a general nature and will include enough humor to make it readable.

Plays of possibly a half-hour's duration for presentation by the members of fire departments before schools, commercial club functions, church fairs, etc. Either the play will convey a fire prevention lesson or two or three minutes immediately following its presentation will be taken up by a member of the fire department to put over a fire prevention message.

Fire inspections will include several fire prevention drives during year. Included in these will be talks to factory operatives discussing fire safety. Drives will be devoted to various types of establishments, as garages, buildings, stores, factories and dwellings. Talks will also be given to children on safety in the home.

Fire prevention contests will be held, including those for the Louis B. Mayer cups.

Large banners are to be prepared for use in front of fire stations during special drives.

These special drives are to include: arson reduction; spring and fall inspection; removal of old buildings; gasoline and oil regulations; clean up of back yards, alleys, attics and basements, to be made spring and fall, etc.

Billboard posters are to be used for calling public attention to fire prevention.

And, last, but of most importance to chiefs, is the drive for new members of the International Association of Fire Chiefs. The officers have set as their goal for the year an increase of five thousand new members.

The International Association of Fire Chiefs are determined to make 1927 a fire prevention year in more than name only. It is developing its organization to carry out the work planned and it has lined up a lot of help in the shape of commercial and other organizations which will be in a position to lend a helping hand in putting over the ambitious program. Incidentally the association will be putting itself on the map through its efforts to help the public by reducing fire loss.

Firemen as "Santa Claus"

Chiefs and members of fire departments have always been looked up to as leaders in emergencies where help is needed for the sick, suffering or needy. In times of public disaster the heroic work of the fire department invariably stands out as among the most prominent aids to restore public safety and give assistance to those hardest hit.

But, of late, in many cities the members have assumed to an increasing extent the none the less interesting role of deputies to the Jolly Old Gentleman from the North Pole!

The practice is becoming quite general in some sections of the country for the members of fire departments to solicit old and cast-off toys from comfortably fixed citizens, and when a goodly bulk of these articles have been accumulated, to reconstruct them into quite seemly representations of their former loveliness, so as to delight on Christmas Day, the hearts of many a youngster who otherwise would have but a very distant acquaintance with Santa Claus.

This very touching and withal very fascinating work of the men in their off-time or leisure hours at the station, has been welcomed by many of them as not only affording an opportunity of doing something for the less fortunate youngsters of their home city, but also in giving themselves an opportunity of exercising no little skill in rebuilding the various worn out toys which have come into their hands from charitably disposed citizens.

Some of the jobs these members of the fire-fighting forces have done in this respect have been quite remarkable, and they have frequently confessed that they had

no idea what they could do in reconstructing the toys until they set their hands to the tasks. Other fire departments throughout the country will likely take up this very commendable work as time goes on and next Christmas may see a very general adoption of the practise of toy reconstruction among the members.

Merry-making Extraordinary!

A recent form of unique New Year "merry-making" was described in the New York daily press of January 2. This consisted in the pulling of no less than twenty-eight false alarms by New Year revellers between the hours of 11:59 p. m. and 12:25 a. m. This form of "humor" cost the city an average of $52—the expense of an ordinary fire alarm—or a total of $1,456!

This, of course, does not take into consideration the danger of accident to men and apparatus or to the fact that real fires occurring when the apparatus is called out falsely may get a good start before the covering companies can get to them.

Especial diligence should be exercised by the police in apprehending any one resorting to this form of "amusement" during such celebrations as New Years and Hallowe'en, and suitable punishment should be applied to those with such a preverted sense of humor. The quicker this sort of thing is nipped in the bud the better for all concerned, the revellers included.

Chief Kenlon Acknowledges Christmas Cards

Having received over 1,100 Christmas cards, Fire Chief Kenlon of New York finds the task of responding to each one of them too great and he has accordingly asked FIRE ENGINEERING to say for him, to his many friends in the fire fighting profession throughout the country that he thanks them and wishes them a Happy New Year. The Chief in an official order to the New York Department had this to say on Christmas eve:

Greeting:

May the star that shone o'er Bethlehem
That holy Christmas night;
Its gentle radiance shed on you
And make your Christmas bright.

Directors of Dominion Chiefs to Meet

The directors of the Dominion Association of Fire Chiefs will meet January 22, in Hull, Que., Canada, to arrange for the 1927 convention.

A card has been sent to the membership asking that if any of the members have any suggestions for topics for papers, that the suggested topics reach the secretary before the directors meet. Officers of the International Association of Fire Chiefs will meet with the Canadian Association.

Bureau of Fire Issues Calendar

In conformity with the modern idea of "prevention", the Bureau of Fire of Wilmington, Del., has issued a very attractive calendar for 1927. Each one of the twelve pages has a striking colored illustration that helps to drive home the value of accident and fire prevention.

The calendar is more than a fire prevention message. It portrays the value of safeguarding the health of the worker and those at home, the importance of accident prevention and of personal hygiene. On the backs of the sheets is valuable health information on such topics as the annual health examination, colds, pneumonia, tuberculosis, vocal infections, heart disease, Bright's disease, headache, diphtheria, scarlet fever, measles, care of the teeth and care of the eyes.

The distribution of these calendars is a novel departure from the accepted field of a fire department.

PRESERVING COPIES OF "FIRE ENGINEERING"

A practice that has been adopted by a number of fire departments and individual readers of FIRE ENGINEERING is to preserve the copies after they have been read and digested, for future reference. Many of these readers have had such copies bound into volumes and in such form have found them as valuable compendiums of information on all subjects connected with fire fighting, fire prevention and fire department practice.

For those who follow this practice an index has been prepared covering all of the important contents of Volume LXXIX, from the January 10 issue to that of December 25, 1926, and a copy of this will be sent to those requesting it. This index will be found of great value in quickly locating any subject treated on which information is desired.

Plans Made for New England Meeting

Some of the officials of the New England Association of Fire Chiefs attended a meeting in the office of Chief Oliver T. Sanborn of Portland, Me., in order to formulate concrete plans for the coming convention of the association that will be held in Portland, Me., on June 21–23.

Those present were Chief Charles H. French, of Manchester, N. H., president; Chief John W. O'Hearn, of Watertown, Mass., secretary; Chief James E. Smith, of Nashua, N. H.; Chief A. J. Cote, of Woonsocket, R. I.; Chief William J. Shepard, of Pittsfield, Mass.; Chief James M. Casey, of Cambridge, Mass.; Chief Sanborn, of Portland; George F. Cobb, traffic manager, and Harry Belknap, press representative.

An inspection was made of the Exposition Building on Park Avenue where the exhibits will be held. This is a large structure with floor area greater than the State Armory of New Hampshire which was used in Manchester last year for the exhibits.

Luncheon was held in the attractive dining room on the top floor of the Congress Square Hotel. In the afternoon a meeting was held in Chief Sanborn's office at which preliminary plans were made for the convention and Tuesday, Wednesday and Thursday, June 21, 22, and 23 named as the dates. Headquarters will be established in the Congress Square Hotel.

It was voted to invite Jay W. Stevens, Executive Secretary of the International Association of Fire Chiefs, to attend and address the delegates.

A vote of thanks was given to Chief R. A. Bogan, of Baton Rouge, La., for courtesies extended to the members of the association on the occasion of the visit to his city by the delegates returning from the recent International Chiefs' Convention in New Orleans. Chief Bogan was invited to attend the New England Convention.

Chief Fred A. Clark, of Attleboro, Mass., and Chief Charles H. Fuller, of Pawtucket, R. I., were appointed as a committee to draw up memorial resolutions upon the death of Chief Robert Browning, of Central Falls, R. I., who succumbed to injuries received while fighting a fire in Pawtucket.

The following Exhibit Committee was appointed: Chief William H. Hawkins, of Haverhill, chairman; Chief Fortin, of Lewiston, Me.; and E. H. Milliken, of Boston.

Among subjects discussed at the meeting were the publication of the year book of the association; the establishment of a fund for chiefs who may be in need of assistance because of illness or other causes; the adoption of standard regulations for the installment of oil burning heating equipment; the design of badges for use at the coming convention; and the co-operation of the chamber of commerce and various civic organizations of Portland in plans for the convention.

It was voted to hold another meeting of the directors in Boston the third week in February at which time a tentative program of topics and speakers will be drawn up.

After the adjournment of the board meeting the members went to City Hall where Chief Sanborn introduced the visiting chiefs to City Manager H. A. Brinkerhoff, who extended a cordial welcome in behalf of the municipality.

HARRY BELKNAP.

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

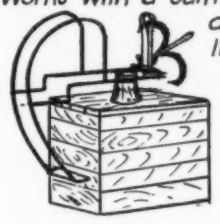
Carboy Inclinator

To the Editor:

Will you please give us a diagram of a rack or locker to hold an acid carboy.

Will be looking for same in FIRE ENGINEERING.

Yours truly,
Engine Co. No. 2,
Wheeling, W. Va.



Answer: The accompanying sketch shows the carboy inclinator being lowered into position over the carboy. By continuing to lower in the position shown the inclinator will rest on the carboy.

The inclinator works with a cam motion, and clamps like a skate, (the lever at the front is so manipulated as to clamp the inclinator to the carboy).

It clutches the carboy firmly and permits easy and safe handling of the same whether the carboy be full or contains but a small portion of liquid.

Large Fires, etc.

To the Editor:

Will you please answer in an early issue the following questions asked in a recent examination here.

J. F. K.
Minneapolis, Minn.

Question 1: How would you handle a fire in a large grain elevator and what precautions would you take?

Answer: There are two unusual hazards in connection with fighting fires in grain elevators: the ever present hazard of dust explosion; bursting of bins when water enters them.

The dust explosion hazard is always at hand, for even the falling of debris may disturb dust which on mixing with air and coming in contact with open flame may explode.

The bursting of bins may result directly from the weight of water in them, or it may result from the grain swelling on becoming wetted by streams.

In the case of water entering the bins it must be remembered that bins are built for grain, not water. If, at a fire, water enters the bins, they are subjected to a far greater pressure than they are designed for and may burst, particularly if they are weakened by fire. As far as the swelling of grain goes this action does not take place instantly, but when it does take place the walls of the bins are sure to go. Such was the experience at the Dow Elevators in Brooklyn a few years ago.

As to fighting fires in elevators the following may be said: Fires in elevators are difficult to fight. Even in the working house the only windows are so high (above the bins) that streams cannot be used effectively from the outside. Bins have no openings between their tops and bottoms, so that where the grain takes fire there is no way of getting at it except through the top, which means the creation of hazards incidental to water in bins.

The long, unobstructed passageways through which the elevator chain belts travel make it possible for fire to travel from the bottom to the top of the working house without hinderance.

The open passageways over bins, whether in the self-contained type of elevator (working house and bins all under one shelter) or in the elevator having a working house and storage bins separate, are unobstructed, and make possible the travel of fire throughout the structure horizontally.

If the conveyor belting is of rubber, or oil soaked leather, it supplies an additional aid to rapid spread of fire horizontally, for these belts run from one end of the structure over the bins to the other.

If the structure is not too high for ladders, the very first step that should be taken by the fire department is to open up over the fire. This is most essential where the fire is in the working house and extending upward. Without opening up it is impossible for men to work their way up the narrow stairs with intense heat and smoke backing down upon them. On the other hand, once the top is opened, the heat and smoke are drawn upward and a single line worked up along the stairway can usually accomplish the task.

Ventilation, too, lessens the danger of dust explosions.

If the fire has originated due to dust explosions, it is likely that both the working house and the galleries over bins will be involved. In this case it will be necessary to open up both over the working house and over the far end of the gallery above bins. Men may then be able to work up stairway in working house section and after killing the fire here, work along in the gallery, driving the smoke to the far end.

Care must be exercised in the use of water above bins, for here the damage can be done. Water carelessly used and allowed to drain down through hoppers into bins may result in the bursting of the bins. When using water over bins, keep streams from entering hoppers, unless grain therein is afire. In this case, use no more water than absolutely necessary to handle the fire.

Where there is a lot of wooden work in the working house, reaching up the entire height of the structure, and this takes fire, about the only thing that can be done is to get heavy streams at work just inside the door and direct them upward to kill as much of the fire as possible, and then follow up with small streams.

Where elevator houses are too high to reach the top with ladders on the outside, the only thing that remains to do is to concentrate all lines into large streams inside doorways. Care must be exercised to protect the men from falling debris, such as broken conveyor belts or chains, platforms, etc.

Question 2: How would you handle a fire in a refrigerating plant?

Answer: A refrigerating plant is precisely the same as a cold storage plant. In either case low temperatures are produced by mechanical means and the temperatures so reached are employed in preserving perishable goods.

The chief danger in connection with a fire in an ammonia refrigerating plant is the liquified ammonia under high pressure in piping and storage tanks. Ammonia when condensed and confined exerts a pressure of 140 pounds per square inch at room temperatures, but when exposed to fire, the pressure increases rapidly with increase in temperature. There is always a possibility of the tanks bursting under the increased pressure due to exposing to fire.

In fighting a fire in such a plant, first provide the maximum of ventilation of rooms in which ammonia pipes or tanks are located. Then use streams to keep tanks cooled, as well as to fight fire. If ammonia odor becomes stronger in air, it is an indication that a leak has occurred somewhere. Back out the lines, for ammonia with air produces an explosive mixture. The power of such a mixture was shown at the Morris Packing Co. fire in Chicago a few years ago, when the wall of a four story brick building was blown out by an ammonia vapor explosion, killing the fire chief and 22 men.

In modern refrigerating plant installations, the ammonia system is equipped with a blow-off to the atmosphere. If the pressure rises above a certain point, the blow-off valve automatically opens. Where the ammonia pipes themselves are led through a building, the first thing to do is to shut off the valves on the piping system so that in case of a break in pipe line the ammonia storage tanks will not be discharged to the air in the building. In this latter case, if the men are not operating in the building, it may be necessary to use smoke helmets, or masks, to get to the apparatus.

Question 3: How should a captain proceed in order to remove a live trolley wire obstructing work on a building on fire?

Answer: Notify the street railway company immediately and

determine if they can shut off the power from the line without delay so that the line can be removed. Frequently the street railway companies have emergency service and can send a truck to the scene of the fire, removing the wire with little delay and without danger to the fire department.

However, if such service is not available and if the street railway company cannot be reached, then it may be up to the department to remove the line. In this case locate the section cut-out switch, which is a switch controlling the current on the line for the particular section passing the building in question. Place ladder against pole on which switch is located and have switch opened. This will kill the line in the section and will make its removal safe. If, however, a section switch cannot be located and a live wire must be cut, then it is safer to cut it at a post or cross-wire support, such that the dead end of the wire will fall to the street. For example, if the fire occurs in the suburban section and if the current is fed to the trolley wire within the city, then the line should be cut at a post or at a support on the side of the suburban district. In cutting the wire place a wooden ladder against the cross supporting wire, cross arm or post, and have the ladder steadied by a couple of men. Send a man with insulated wire cutters up to the wire and have him cut the wire at the support but on the far side from the city. Take care that when the wire falls it does not strike any men. After the live end has been cut off and the dead wire is resting on the street, the other end can be cut from the second support and wire removed.

One precaution which should be observed is to see that the man cutting the wire does not touch the cross wire while he has his hands in contact with the exposed trolley wire. There is little danger in operating around a trolley wire if the men keep themselves insulated from conductors or from the ground.

Question 4: What is a relief valve?

Answer: A relief valve is an automatic valve employed to relieve the water pressure at the fire pump, at any predetermined pressure within the scope of its limits. A relief valve acts very much in the same manner as a safety valve on a steam boiler. (The churn valve is in reality an auxiliary relief valve, but is hand operated. Its purpose is to relieve the water pressure on the discharge side of the pump when such is desired.)

Question 5: Prepare a report on the fire alarm system taking into account the importance of a proper system, defects of the present system, dangers to which the city is exposed at the present time, etc.

Answer: This report cannot be made as no data is at present available on the fire alarm system of your city.

Question 6: How would you handle a fire in a large basement having two elevator shafts and front and rear stairways?

Answer: The method of handling the fire would depend largely upon the occupancy, the stage of the fire, and the danger to life involved.

About the only general information which can be given on fighting a fire in such a situation as you outline would be to so ventilate as to make it possible for the men to safely operate and efficiently handle their lines in the basement.

The usual practice would be to ventilate over the shafts at one end of the building and drive the fire from the other end toward these shafts. At which end these operations are started would depend largely upon the location of the fire and how it is tending to spread.

In the event, for instance, that operations were started at the front of the building, then the shafts at the rear would be opened up at the top and fire driven from the front toward the back.

While this operation is going on additional lines would be put in position on the various floors to prevent fire from spreading from the shafts onto these floors.

This method of operation makes it possible for the men to work at close range, do effective work, and avoid unnecessary punishment. Experience in ventilating shows that it is perfectly safe when proper precautions are observed to open up over shafts in order to draw out the heat and gases which would otherwise interfere with the department when fighting the fire.

Question 7: What conditions should govern a captain ventilating a building?

Answer: The exact proceedure in ventilating a building would depend upon several cricumstances: In the first place, the height of the building adjacent to the fire building would determine whether or not this building adjacent to the fire building overhangs the fire building. In that case the men may get to the roof of the fire building by going up through the higher building and out through windows overlooking the fire building. If the building adjacent is not as high as the fire building then the men may go to the roof with roof rope, axe, hook, and if necessary a roller to be used in getting a ladder over the cornice of the lower building. This operation now being described would be necessary in case the truck company were not equipped with aerial ladder or other ladders of sufficient length to reach the roof. The captain should direct the operations of the men and should go to the roof with them if necessary. When the men have reached the roof by whatever method they employ, they should remove all removable coverings over skylights, elevator shafts, vent shafts and, if possible open up from the roof all front and rear shutters on the top floor. Before the captain has this operation carried out he must make sure that lines are ready to follow up the ventilation. In other words no ventilation should be performed until the lines are at hand ready to start their streams. In the above it is assumed that the captain has authority on the ground in the matter of ventilating or that he is working under instructions from a superior officer. In sending men to ventilate care must be taken not to send them to the roof of a building which is in such condition as to seriously endanger their lives. It is very necessary when men are sent to the roof to take with them roof ropes for safety in case they are cut off. Where men cut roof over stairway it is essential that they make sure that the plaster ceiling below the roof is also open. In a building where there is a hanging ceiling, or where there is a cock loft, the plaster ceiling may not be opened up and the fire may be penned in at the top of the stairway just beneath the plaster ceiling. In this case opening the roof up does little good, for heat and gases have no chance to escape until the plaster ceiling is pushed down.

These latter points are minor points, but should all enter into the conditions which govern a captain when overseeing the operation of ventilating.

Question 8: As a captain you are in charge of a large spreading fire in a frame dwelling house district with a high wind. How would you check and extinguish the fire and protect surrounding property?

Answer: If a captain were in charge of a fast spreading fire of this nature it would indicate that only a first alarm or still alarm has been transmitted. In this case he should immediately delegate a man to send in a second, third, and fourth alarms if such are required—the number of companies being called depending upon the condition of the fire.

Until the arrival of a superior officer it is the captains' duty to cover exposures and head off the fire in its direction of its spread. This is usually accomplished by stretching lines to operate on the leeward side of the fire and using sufficient hose so that the line can be shifted from point to point as the necessity demands.

No time should be lost in attempting to extinguish the fire in any particular building if it has gained headway unless there is sufficient apparatus on hand to warrant the use of some of it for this purpose. Instead, efforts should be made to checking the spread of the fire to new buildings.

If there is a high wind blowing it may be expected that embers will carry great distances and start fires remote from the original fire. In this case spare men should be sent to patrol the area exposed and to carry with them buckets of water, fire extinguishers or other minor appliances which might be effectively used in killing any incipient fires.

Upon the arrival of a superior officer the captain in charge of the fire should quickly outline what he has done and thereupon turn the command over to the superior officer and take instructions from him.

Chief Davis of Bayonne Retires

Chief Alfred Davis officially retired as head of the fire department at Bayonne, N. J., on January 1, 1927, and Assistant Chief William McLoughlin has been advanced to fill the vacancy.

Chief Davis was head of the department for twenty years. He was appointed chief on January 1, 1907, and placed in charge of the paid department that was established on September 3, 1906. He was a charter member of the Protection Engine Company, under the old volunteer system. The department was established on a two-platoon system on August 24, 1917.

During the term of Chief Davis, several changes have occurred—the department advanced from the old hand tub to the modern gasoline pumper, and the equipment was made such that it compared equally with other departments throughout the country.

The pension fund was incorporated in 1908 and Mr. Davis served as president for thirteen years, or until 1921. At this time the fund was merged with the police department fund by state law. In 1921 he was elected a representative of the fire department and served for two terms of two years each. Mr. Davis retires on a pension of $2,750.

William McLoughlin, the new chief, has been a member of the fire department since the paid system was established, and when the two-platoon system was inaugurated, he was made assistant chief.

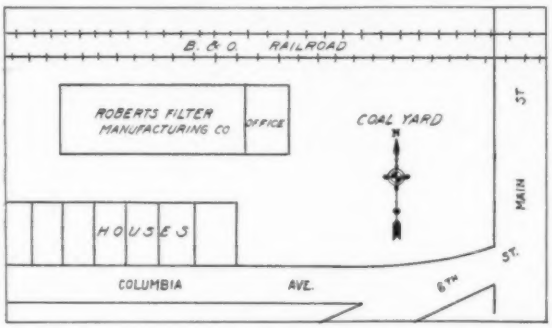
Harvard, Neb., Installs Fire Siren—An electrically operated fire siren has been installed in Harvard, Neb.

ROBERTS FILTER PLANT DESTROYED IN EARLY MORNING FIRE AT DARBY

Cold Hampered Firemen in Work—Seventy People Made Homeless—Assistance Rushed from Nearby Towns

FIRE destroyed the plant of the Roberts Filter Manufacturing Company, early on December 19, in Darby, Pa. The chilly blasts hampered the firemen in their work and twenty-five firemen were overcome and injured while the flames communicated from the plant to a row of houses nearby.

The factory building was three hundred feet long and fifty



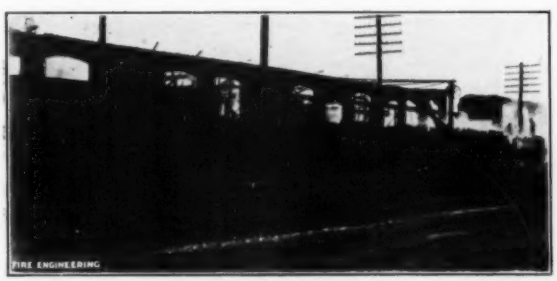
Layout of District Near the Roberts Filter Plant

feet wide, constructed of brick and frame with one partition wall. Fire was discovered by one of the residents in the nearby homes, and the alarm was turned in at 6:20 a. m. The department responded under the command of Chief Jack Mabus of Darby and assistance was rushed from Clifton Heights, Landsdowne, and from the Fifth District of Delaware County which includes Colwyn. When the apparatus arrived, smoke was issuing from a number of the windows, and the entire building soon burst into flame.

Water froze on the ground and coats as fast as it fell. The row of houses near the plant soon caught on fire and ignited like tinder.

The thirteen companies that responded could not save the plant nor the residences, but they aided materially in the prevention of the total destruction of the district. There were five American-LaFrance, one Stutz, one Hale and one Mack pumper in operation, and ten streams were used with nozzles varying in size from ⅞-inch to 1¼-inch.

Seven hydrants were used and the average distance between



Courtesy, The Philadelphia Inquirer

The Ruins of the Filter Manufacturing Plant

hydrants was six hundred feet. The hydrants are supplied by a gravity water system.

It is believed that a passing locomotive discharged a spark that set fire to a large billboard near the railroad tracks. The strong wind that was blowing communicated the fire to the plant of the Roberts Filter Manufacturing Company and from there in turn, the fire brands were blown on to the row of residences. The loss on the plant has been estimated at $500,000.

Nebraska Firemen Meet Next Week—Plans are being completed for the convention of the Nebraska Volunteer Firemen's Association to be held at Columbus, Neb., on January 18–20. It is estimated that 1,400 members will attend this gathering.

FOAM REQUIRED TO EXTINGUISH FIRE WHEN SPARK DROPS IN ENAMEL VAT

Traveling Crane Throws Spark Into Pipe-Enamelling Liquid With Disastrous Results—Foam Makes Quick Work of Blaze

A SPARK from a traveling crane which was lowering a large cage of conduit pipe into a 4500-gallon tank of enameling fluid in the plant of the Enameled Metals Company at 61 Bridge Street in the Borough of Etna, just across the Allegheny River from the eastern end of Pittsburgh, Pa., Tuesday afternoon December 7, about 4:30 p. m. caused an explosion and fire which resulted in damage to the plant estimated at $50,000 and endangered the lives of 150 workmen. The fire was only controlled and extinguished after a supply of Foamite was rushed to the scene from the city warehouse of the Foamite Company.

Nine Volunteer fire companies from the borough of Etna and surrounding boroughs fought the fire for quite a while without making much headway in extinguishing the fire, the water used by the volunteer firemen and the water from the automatic sprinklers which functioned properly only tended to spread the fire. Seeing that the fire was getting beyond the control of the volunteer firemen, the management of the Enameling Plant appealed to Pittsburgh for help through Chief Smith, stating that they could not extinguish the fire with water and asking Chief Smith to send them foam apparatus.

Not having any foam apparatus or extinguishers of this type in the department, Chief Smith sent Engine Company No. 9, located at Butler and McCandless Avenue, which is directly opposite the Borough of Etna, in command of Captain Philip D. Cooke, a fire company which has had plenty of experience in handling oil fires, being located in the oil refinery and paint factory district.

Chief Smith also notified the Enameling Company to get in touch with the Spang Chalfant Company, a large manufacturing plant which is near the plant of the Enameling Company, which plant is equipped with foam apparatus for use of their equipment, which was done, but owing to the inexperience of the volunteer firemen in handling this type of extinguisher, not much further progress was accomplished until after the arrival of Engine Company No. 9, which practically took charge of the situation. Immediately after the appeal to Chief Smith for foam apparatus, Chief Smith got in touch with the Foamite Sales Company's warehouse and distributing station located in the downtown district of the city.

While he was trying to get the company on the phone, a representative of the Foamite Company stepped into the office to see the chief on some official business, just in time to take hold of matters. The representative immediately got in touch with the warehouse and notified them from the chief's office to get apparatus and a full supply of Foamite ready for immediate service.

In the meantime Chief Smith volunteered the use of the fuel truck from the Third Battalion for quick service in getting the foam apparatus to the scene of the fire, the Foamite Company's truck not being available to make the run. By the time the fuel truck reached the warehouse everything was ready to load. An appeal was made to the police department through Director of Public Safety James M. Clark for an escort of motorcycle police to get the truck through the congested traffic, which appeal was granted.

By the time the truck was ready to start the motorcycle police had reported and the start to the fire was made, a motorcycle leading the truck and one following in the rear. Having the right of way with the motorcycles as an escort and their loud sirens in action, the truck traveling at an average speed of between forty and forty-five miles per hour, made the run to the scene of the fire a distance of approximately six miles from the start in a short period of time. The fuel truck was loaded with a foam generator and a forty gallon F. M. Engine.

The captain of Engine Company No. 9 and the men under his command, after using the contents of their chemical on the fire and rendering what other service they could, knowing just what the Foamite Company would want in the way of help upon their arrival at the fire, had all their lines laid and all they had to do as soon as the truck arrived was to unload the apparatus, set it down, connect the line of Engine Company No. 9 to the Foam Generator, and set it in operation. Five minutes after the Foamite apparatus was put in action the fire in the enameling tank was completely extinguished and further danger of the fire spreading was at an end.

The tank in which the fire started was five by eight feet wide and eleven feet deep and was located in one corner of the building, a high one-story mill building seventy-five feet wide and one hundred and twenty feet long, constructed of structural steel with

corrugated iron walls and roof, with skylight running the entire length of the building.

The fluid in the tank used in the enameling process consisted of linseed oil, naphtha and asphalt. This is the first fire the Enameling Company has had in one of these tanks for over twenty years.

The fire from the enameling tank extended to the roof of the building, destroying the greater portion of it, burning out all the window frames and skylights and doing damage to valuable machinery and other contents of the building. The enameling plant consisted of eleven mill and factory buildings of various sizes and class of construction, valued at over $500,000.

Engine Company No. 9 of the Pittsburgh Fire Department, consisting of an American-LaFrance 750-gal. triple combination pumper with 1,000 feet of 2½-inch cotton rubber lined hose, a crew of six men, captain, pumpman and four hosemen, was in service at the fire four hours and eighteen minutes and traveled a distance of three and one-half miles going to and returning from the fire. The company used one line of hose, 450 feet long, with seventy-five pound pressure at the hydrant. The pumper with the exception of the chemical tank was not used at the fire, the fire hydrant furnishing sufficient pressure in controlling and extinguishing the fire.

Chief Smith, through Mayor Charles E. Kline, of the city of Pittsburgh, received a very complimentary letter of appreciation from the Enameled Metals Company for the quick response and efficient service rendered by the Pittsburgh firemen and the chief's cooperation and help in getting the Foamite apparatus to the scene of the fire. WILLIAM E. PATTERSON.

Threatening Theatre Fire Checked

A fire in the Rialto Theatre Building, a triangular structure facing on Central and Lexington Avenues, Passaic, N. J., which occurred on December 6 last, threatened to assume large proportions, but was kept down to small loss by the Passaic Fire Department, under command of Chief R. H. Bowker. The first alarm came in 10:22, from the theatre box, and this was followed by two other alarms, when Chief Bowker, on arrival with the first alarm companies found the blaze well advanced and sized up a very threatening situation.

Chief R. H. Bowker, Passaic, N. J.

The blaze originated in a barrel of old papers stored in one of the cellars of the stores under the theatre and had communicated to the stores above when the department arrived. Four Ahrens-Fox 1,300-gal. and one Webb 550-gal. pumpers were used, there being four hydrants available, as shown in the diagram furnished by courtesy of Chief Bowker, the hydrants having 6-inch branches to mains and all three-way, with independent valves on each 2½-inch hose outlet, with steamer connection. These were spaced some 350 feet apart. The pressure was 95 pounds and 10 hydrant streams were thrown, about 3,000 feet of hose being laid. Nozzles used were 1¼ and 1⅛ inches. Cellar pipes were also used to advantage. The fire burned about three hours, and the loss was kept down to about $30,000 on building and contents. The stores involved were ladies' dress goods, shoe-shining parlor, fruit store and notion shop.

Retired N. Y., Deputy Chief Dies in Miami—Former Deputy Chief James F. Murray, of the New York Fire Department, died at his winter home in Miami, Fla., at the age of seventy-five. He was a member of the fire department for more than forty years and his death followed a short illness. The funeral took place from his late residence in Brooklyn on January 7 and interment was made at the Holy Cross Cemetery. The funeral escort consisted of a battalion of three companies with twenty-four men to each company under the command of Deputy Chief Patrick Maher.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending December 24

HARTSHONE, OKLA.—Planing mill of John S. Martin	40
MONTELLO, WIS.—Montello High School destroyed	25
MILWAUKEE, WIS.—Developing rooms of Botz-Morrison Photo Studio	35
MONTGOMERY, ALA.—Six buildings destroyed	40
LAUREL, IA.—Five business buildings on Main St. destroyed	25
MARION, IA.—Weiss Implement Store damaged	25
JACKSON, MICH.—Stillman Dept. Store Mich. Ave., damaged	100
JACKSON, MICH.—Plant of Hinkley Motors Co. destroyed	210
ROCHESTER, N. Y.—Damage to a combined business and apartment block	25
GUILFORD, CONN.—Two barns on farm of E. L. Cole, north of Guilford	25
GLOUCESTER, MASS.—Property of Massachusetts Bay Steamship Co.	40
KALAMAZOO, MICH.—Alex Veilman Dept. Store and adjoining property	300
KEARNEY, N. J.—Frame building of St. Anthony's Home	40
MOUNT AIRY, N. C.—Four city blocks damaged	170
PITTSBURGH, PA.—Alexander W. Verner's home damaged	45
NEWARK, N. J.—Factory of Odell Manufacturing Co.	85
CLINCHBURG, VA.—Band mill of Holstein River Lumber Co. destroyed	80
CENTERVILLE, IA.—Standard Furniture Co. property	40
ST. CLAIR, PA.—Building occupied by Blue Ribbon Social Club	100
DENVER, COLO.—Main building of American Crate & Basket Co.	125
PATERSON, N. J.—Garage owned by Louis Gottieb, 64 Garfield Ave.	40
ALLENTOWN, PA.—Building and contents owned by C. R. Fluck	40
DARBY, PA.—Plant of Roberts Filter Mfg. Co. destroyed	250
BRITTON, S. D.—Building housing Farmers & Merchants' Bank destroyed	120
SCRANTON PA.—Connell Building damaged	80
PLATTEVILLE, WIS.—City Hall destroyed	35
MONROEVILLE, ALA.—Main business district damaged	80
ARKADELPHIA, ARK.—Garage owned by J. L. Newberry, 404 Main St.	25
NEW BRITAIN, CONN.—Warehouse of Joseph Arbour, Whiting St.	40
FRANKFORT, KY.—Girls' dormitory of Kentucky State Industrial School	40
EDDYVILLE, IA.—Four buildings destroyed	65
GLOVERSVILLE, N. Y.—Glove factory of Horder Bros. damaged	25
POUGHKEEPSIE, N. Y.—Windsor garage block, destroying stores, apartments and garage	210
MORRISTOWN, N. J.—Robert B. Jolley store in Becker Bldg.	40
FLINT, MICH.—Montgomery Cafe and adjoining property	80
SPOKANE, WASH.—Building at Riverside & Washington Avenues	60
BELLINGHAM, WASH.—Three frame dwellings, State Street	25

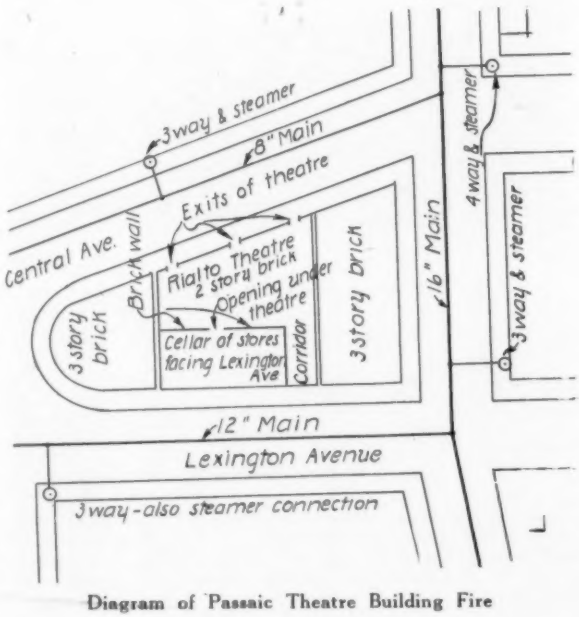


Diagram of Passaic Theatre Building Fire

LUPUS, MO.—Business section damaged..... 25
OMAHA, NEBR.—Plant of Marshall Paper Company damaged. 40
NEW BRITAIN, CONN.—Sacred Heart parochial school damaged 25
LUZERNE, N. Y.—Rockwell Falls Presbyterian Church and adj. property 40
HOBOKEN, N. J.—Factory of Connewey Electric Laboratories 25
PETERBORO, ONT.—Plant of Canadian Canoe Company destroyed 80
EASTMAN, QUE.—Business establishments including post office 40
COAHOMA, MISS.—Montroy Building owned by Mrs. J. E. Montroy 80
MURPHYSBORO, ILL.—A. H. Bartlett garage, office of American R. R. Exp..... 40
CARLINVILLE, ILL.—Marvel Theatre destroyed..... 50
EAST ST. LOUIS, ILL.—Commercial building at 118 Collinsville Ave. 65
MARBLE HILL, MO.—Three story dormitory of Will Mayfield Junior College 40
OCALA, FLA.—Izlar Motor Company building damaged..... 60
IONIA, MICH.—M. C. Stout Elevator destroyed..... 25
CHICAGO, ILL.—Apartment building at 7301 Vincennes Avenue, damaged 25
MEMPHIS, TENN.—Factory of Specialty Manufacturing Company destroyed 30
WASHINGTON, PA.—Tipple of Richhill Mine owned by McClane Mining Co..... 80
ROCK MOUNT, N. C.—Plant of Ward Lumber Company, adjoining property 80
PURCHASE, N. Y.—Antler Inn destroyed..... 60
DALLAS, TEXAS.—Lawson Rubber & Manufacturing Company plant 80
BROOKLYN, BALTIMORE, MD.—School of St. Rose of Lima R. C. Church..... 40
WASHINGTON, D. C.—Building at 1210 G. Street, occupied by H. C. Grove, Inc..... 170
LOUISVILLE, KY.—Clifford Laundry, 20th & Madison Sts., destroyed 40
BEAVER DAM, KY.—Odd Fellows Buiding destroyed..... 25
GREENWICH, CONN.—Ely Court destroyed..... 425
DEVIL'S LAKE, N. DAK.—Gray Nun's Indian School destroyed 40
BALDWIN, N. Y.—Twelve one-story buildings, Pipe Line Boulevard 85
BYRN MAWR, PA.—Several shops of Byrn Mawr College, damaged 40
IRON MOUNTAIN, MICH.—Union Dock Warehouse Company's plant, destroyed 325
WINNIPEG, MAN.—(CANADA)—Winnipeg Theatre destroyed. 100
SEMINOLE, OKLA.—Fire starting in hotel does damage of... 170
POTTSVILLE, PA.—Four business buildings destroyed..... 100
DALLAS, TEXAS.—Senta Fe building damaged..... 40
NORTH TONAWANDA, N. Y.—Old postoffice bldg., owned by H. Henschell of Buffalo..... 100
PHILADELPHIA, PA.—Sigma Alpha Epsilon House of University of Penn..... 65
TAYLOR, TEX.—Building of Citizens Oil Mill Company..... 35
RALEIGH, N. C.—St. Agnes Colored Hospital..... 25

Week Ending December 31

ST. AUGUSTINE, FLA.—Magnolia Hotel, (estimated)..... 100
NILES, OHIO—Warehouse and stock bldg. of Thomas Sheet Steel Co. 250
AUBURN, ALA.—Sigma Nu Fraternity house..... 30
McKEES ROCKS, PA.—Outlet Dept. store, Mitchell Meat Market damaged 100
AVIS, PA.—Frank Hoyer Lumber Co. plant damaged..... 85
NEW ALBANY, IND.—Warehouse of Bensinger Furniture & Carpet Co. 28
FAIRFIELD, ILL.—Pendelton-Boggs business block..... 83
ENTERPRISE, ORE.—Enterprise Flouring Mill Co. plant..... 32
CHARLESTON, S. C.—Sash and door factory damaged..... 35
OCONOMOWOC, WIS.—Sanitarium building of Summit Hospital. 170
WEST BRANCH, MICH.—H. E. Morrison farm implement store and public garage..... 45
CHATHAM, MICH.—Chatham Co-operative store damaged.... 30
KANSAS CITY, MO.—Junction Hotel damaged..... 55
LAUREL, MISS.—Mill of Eastman-Gardiner Hardwood Company 85
SANTA FE SPRINGS, CALIF.—Methodist Church and adjoining property. 35
ABILENE, KANS.—Hodge Block destroyed..... 100
EAST PITTSBURGH, PA.—Six 2-story frame buildings including hotel. 85
PITTSBURGH, PA.—Tow boat "Red Wing" owned by Ralph E. Caches. 25
DETROIT, MICH.—Building of American Agricultural Chemical Company. 40
POUGHKEEPSIE, N. Y.—Factory of Falkill Aniline & Chemical Company. 40
PROVIDENCE, R. I.—Storehouse of McKonnon Construction Co., destroyed. 25
JOHNSTOWN, N. Y.—National Hotel Building, S. Market St., damaged 35
COLUMBUS, MONT.—Square Deal Store, destroyed..... 25
RED CLOUD, NEBR.—Hunt Drug Company and adjoining property damaged. 25
VERDON, S. DAK.—Store of O. D. Keiser, destroyed..... 25
KEITHSBURG, ILL.—Main building of Cannon Oiler factory.. 35
GREEN VALLEY, ILL.—Four business houses damaged..... 50
HALLOWAY, MINN.—Elevator of Farmers' Co-operative Elevator Company. 30
MUSKEGON, MICH.—Moose Temple block destroyed..... 100
MILWAUKEE, WISC.—Building at 199 Oregon Street, damaged. 25
DYERSBURG, TENN.—G. E. Scott Lumber Company office... building. 25
VALLEY MILLS, TEX.—Crow Hotel block owned by R. V. English. 40
HELENA, ARK.—Opera House damaged..... 60
BIG SPRINGS, TEX.—Cole Hotel, J. C. Douglas, Propr..... 125
SENECA, MO.—Stone Garage and contents destroyed..... 45
MILWAUKEE, WISC.—Building occupied by Dever Bros. & Federal Foundry Co..... 50
CHICO, CALIF.—Butte Meadows Hotel, 35 miles east, destroyed 50
CENTRAL SQUARE, N. Y.—Postoffice, Methodist Church and surrounding property 190
CLEVELAND, OHIO—Garage and oil trucks of Brooks Oil Company 80
BROOKLYN, N. Y.—Cork factory of L. Mundet & Son, damaged 40
BUFFALO, N. Y.—Union warehouse of dock company on Blackwell Canal 325
FAIRFIELD, ILL.—Pendleton Boggs business block destroyed.. 70
ST. LOUIS, MO.—Building at 1104 North Third Street..... 25
HILDRETH, NEBR.—Hildreth High School Building destroyed 25
AUDUBON, IOWA—V. S. Farmer corn canning plant damaged 40
WATERLOO, IOWA—Crystal Theatre and adjoining property destroyed 125
WHEATLEY HILLS, L. I., N. Y.—Residence of H. W. Lowe destroyed 140
WINNEBAGO, MINN.—Hotel Florence destroyed..... 30
ELIZABETHTOWN, N. C.—Property in business section destroyed 35
SARATOGA SPRINGS, N. Y.—Masonic Temple, South Broadway 85
SAND SPRINGS, OKLA.—Yates Building destroyed..... 35
OSGOOD, ONT.—General store of George Craig destroyed..... 30
LEXINGTON, KY.—Jefferson Davis School Building, S. Limestone St. 45
TECUMSEH, NEBR.—J. J. Johnson flour mills, destroyed..... 35
WELLESLEY, MASS.—Arcade Building, Wellesley Square, damaged 25
YORKTON, SASK, CAN.—Krushen block, destroyed..... 110
STAUNTON, VA.—Six stores, Johnston Street, destroyed..... 35
RUMFORD, ME.—First Baptist Church, destroyed..... 30
OTTAWA, ONT., CAN.—Keyes Supply Company, Ltd., Sparks Street 35
DAVISBORO, GA.—Six stores destroyed..... 60
LOUISVILLE, KY.—Portion of plant of Louisville Bedding Company 180
HOLYOKE, MASS.—Building and store of Hampden Trimming Company 30
TUPELO, MISS.—McCarty Block destroyed..... 125
WATERTOWN, N. Y.—Paper mill of International Paper Company 250

Week Ending January 7.

SHERBOURNE, N. Y.—Lumber and coal yards of T. B. Gaines damaged 125
MONTICELLO, ARK.—Two business buildings destroyed, others damaged 35
SEATTLE, WASH.—Plant of Independent Paper Stock Company damaged 25
YORK, N. Y.—United Presbyterian Church and town hall.... 40
NASHUA, N. H.—Goodrich block, Main Street damaged..... 65
MINNEAPOLIS, MINN.—Consumers Wholesale Supply Company 85
DUNKIRK, N. Y.—Warren Axe & Tool Company destroyed... 85
MINERAL WELLS, TEX.—Buildings and stock of J. C. Lleyellyn Lumber Co. 35
PRITCHARD, ALA.—Buildings owned by Dr. W. T. Whitledge 40
KANSAS CITY, MO.—National Block building owned by W. H. Hall 50
FLINT, MICH.—A. M. Barnes store damaged..... 200
HOBOKEN, N. J.—Garage of Eastern Transfer Company destroyed 40
VENTURA, CALIF.—Absorption plant of General Petroleum Company 70
ALTADENA, CALIF.—Residence of Mrs. Grace Harris destroyed 65
DEARBORN, MICH.—Hotel Kandt Block damaged..... 60
CORSICANA, TEX.—Buildings in business district damaged.. 100
PASSAIC, N. J.—Business establishments, Passaic St. & Main Ave. 40
KNOXVILLE, TENN.—Store of McCallie's Inc., destroyed.... 80
CHATTANOOGA, TENN.—Home of Mrs. N. Thayer Montague, Lookout Mt. 30
FLINT, MICH.—Pringle Furniture Bldg., 607 S. Saginaw St., damaged 25
NILES, MICH.—Building occupied by Niles City Bakery, damaged 25
HARBOR BEACH, MICH.—Paste plant of Huron Milling Company, damaged 60
OPP, ALA.—Several stores damaged 25
MORRISON, ILL.—Burch Store damaged..... 40
GREEN BAY, WISC.—Continental Building and adjoining property 85
HULL, QUE.—Windsor Hotel and Caron Store destroyed.... 100
BALTIMORE, MD.—Barn of Mercy Villa Convelescent Home, destroyed 40
HOHENWALD, TENN.—Scott Hotel and adjoining property damaged 40
HAGERMAN, TEX.—Carver Grocery, Hagerman Hardware Co. J. R. Franks 25
WALLA WALLA, WASH.—Hanger & Thompson Department store damaged 60
PORT HURON, MICH.—Building occupied by Federal Savings Bank, damaged 70
GARY, IND.—Business block damaged..... 30
HOLLEY, N. Y.—Evaporator of Duffy Mott Company damaged. 25
NANTY GLO, PENNA.—Building occupied by Nanty Glo Journal 40
LONACONING, MD.—Staken Building and adjoining property. 50
BELLINGHAM, WASH.—The Fair Department store, damaged. 50
SALINAS, CALIF.—Sacred Heart Roman Catholic Church destroyed 40
NILES, OHIO.—Plant of Thomas Steel Company, damaged... 250
SAUSALITO, CALIF.—The Alta Miro Hotel, destroyed..... 70
PIPER CITY, ILL.—Three business buildings damaged..... 60
ITHACA, MICH.—Building occupied by Gratiot County Herald, destroyed 125
READING, PA.—Bldg. of W. F. Rempis Iron Co. damaged 60
SAN FRANCISCO, CAL.—Warehouse, S. F. Milling Co. Ltd. 125
SPARTA, GA.—G. F. Pierce Memorial Church, destroyed.... 35
LAMONI, IOWA.—Dormitory of Graceland College..... 25
VIROQUA, WIS.—Bldg, owned by H. D. Williams, damaged... 60
NEW YORK, N. Y.—Res. of J. F. Schwarzenbach, damaged... 80
CAMERON, TEX.—Drane Co. building destroyed..... 100
LOUISVILLE, KY.—Kentucky Drug Co., 5th & Main Sts.... 60
GRADY, ARK.—Business establishments destroyed..... 25

COURSE OF INSTRUCTION IN FIRE PROTECTION

AS GIVEN AT THE UNIVERSITY OF ILLINOIS

FIRST-AID EXTINGUISHERS

By R. O. MATSON,
Underwriters' Laboratories, Chicago, Ill.

THIS twenty-sixth installment of the University of Illinois Course in Fire Prevention continues an article on the purposes, functions, care and maintenance of first-aid fire extinguishers by one who has made an especial study of his subject and is well qualified to write upon it:

Recharging, Replacements and Repairs

They should be discharged and recharged yearly to determine whether they are in an operable condition and to insure that they are charged properly. A desirable arrangement is to have such persons as might be called upon to use these appliances in case of fire, discharge them in order that they may become familiar with their operating characteristics.

When replacements, such as hose and acid bottle, are necessary, they should be obtained from the manufacturer of the extinguisher, as parts not especially intended for use in a particular device might result in altering the operating characteristics of that device.

Repairs should never be made on the extinguisher except by the manufacturer, as inferior workmanship might result in an explosion during the operation of the machine because of the pressures developed.

Should Be Protected From Freezing

Soda-acid extinguishers should be protected from freezing by placing in a warm room or heated cabinet where the temperature is not allowed to go below 46° F. The practice of placing calcium chloride (CaC12) or sodium chloride (NaC1) in the soda solution should not be permitted. Calcium chloride is objectionable because of the reaction which takes place, resulting in the loss of carbon dioxide gas, and sodium chloride because of its corrosive influences. Besides, lowering the freezing point of the soda solution does not protect the acid within the acid bottle. While it is true that commercial sulphuric acid, 66° Baume, has a very low freezing point, it is also a fact that such acid has the property of absorbing water or moisture from the air and when sufficient moisture has been absorbed to reduce the gravity to 65° Baume, the freezing point of the acid is practically the same as that of water. It cannot be too strongly emphasized that any other means to protect soda-acid extinguishers from freezing than that of maintaining the temperature of the solutions above 40° F. have not met with success.

What has been said of the principle of operation, use and maintenance of two and one-half gallon soda-acid extinguishers applies equally as well to one and on-half gallon extinguishers of this type. These extinguishers are especially suitable for use in homes, schools, and the like, where they may be operated by women and children. This appliance bears a classification of A-2, it being suitable for use only on Class A fires, and two machines constituting one unit of fire protection.

The Foam Extinguisher

The general appearance of the two and one-half gallon foam extinguisher is similar to that of the two and one-half gallon soda-acid extinguisher. Instead of an acid bottle, however, a long cylindrical inner container is supported within the outer shell. The outer shell contains a solution of sodium bicarbonate (NaHC03) and a foam ingredient; and the inner container a solution of aluminum sulphate (A12(S04)3). Upon inverting the extinguisher the two solutions mix and a chemical reaction takes place between the sodium bicarbonate and the alumnium sulphate, resulting in the formation of carbon dioxide gas under pressure. The foam ingredient does not enter into the chemical reaction, but gives stability and substance to the minute carbon dioxide filled bubbles which are produced. In this extinguisher the carbon dioxide serves two purposes: It results in discharging the extinguishing liquid from the machine, and it serves as a part of the extinguishing agent. The foam consisting of minute bubbles filled with this incombustible gas forms a blanket over the burning material, excluding the oxygen of the air, thereby extinguishing the fire.

Foam extinguishers are suitable for use on class A and B fires, but not on Class C fires. Upon Class A fires, both the cooling effect of the water employed in the extinguishing agent and the smothering effect of the foam are of importance in fire control. Upon Class B fires, the blanketing effect or smothering effect only is of importance. While, when attacking A fires with this extinguisher, the stream should be directed at the base of the flames, when attacking Class B fires the stream should be directed against the side of the container in order that the foam produced may flow over the surface of the burning liquid to form the most effective blanket. One two and one-half gallon foam extinguisher constitutes a unit fof first-aid protection on both Class A and B fires.

Charging and Maintenance of Foam Extinguishers

Foam extinguishers are not charged when received and therefore should be charged in accordance with the manufacturer's instructions before being installed. They should be discharged and recharged yearly. Only charges furnished by the manufacturer of the extinguisher should be used.

Special precautions should be taken to wash all parts of the extinguisher after discharging to insure that the outlet strainer, hose, and nozzle are not clogged. When recharging, the solutions should be made up in separate containers and should not be poured into the extinguisher until the charges are thoroughly dissolved.

Foam extinguishers must be protected from freezing in the same manner as soda-acid extinguishers; that is, by placing in a warm room or heated cabinet, and not by depressing the freezing point of the solution. While these extinguishers are intended to operate in an acceptable manner at temperatures between 40° and 120° F., the most effective stream and best quality of foam is produced when operating at temperatures around 70° F., which is ordinary temperature. At the lower temperatures the chemical reaction is somewhat slower, tending to result in sluggish operation, and at the higher temperatures the chemical reaction tends to produce a stream which sprays somewhat. In order to obtain the maximum fire protection from this type of an extinguisher it is important that the solution be kept as near to ordinary room temperature as possible. For this reason it is recommended that where lower temperature conditions might be encountered, foam extinguishers be installed in warmed rooms or heated cabinets where the temperature is not allowed to go below 50° F., and that they never be placed near boilers, heaters, etc., or in the direct rays of the sun, where they might be subject to excessively high temperature conditions.

The above remarks in regard to two and one-half gallon foam extinguishers apply also to the one and one-half gallon machine of this type. This smaller size is especially suitable for use by women and children. Two appliances constitute a unit of first-aid fire protection on either Class A or B fires.

(To Be Continued)

Sheridan, Wyo., Chief in Accident

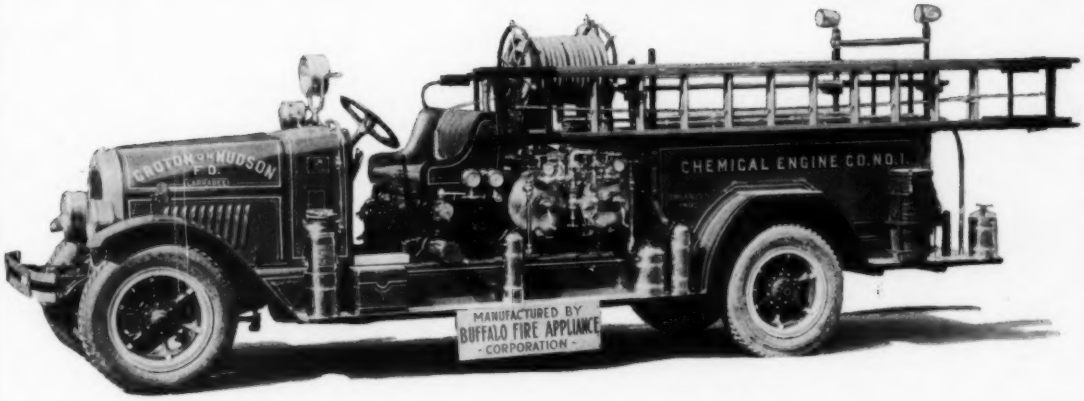
While responding to a fire, Chief Fred W. Tossie of Sheridan, Wyo., struck another automobile and then crashed into a fire hydrant. The chief received injuries about the hip and his car was badly damaged. The injuries, however, were not serious.

Chief Tossie has been with the fire department since May 1, 1916, and has served as head of the department since September 1, 1926. The men work on twenty-four-hour shifts followed by a like number of hours off.

The apparatus consists of a Seagrave combination hose and chemical, one Reo combination hose and chemical, and one American-LaFrance 750-gallon pumper. The chief's new Dodge car was the one that was damaged in the crash.

Asst. Chief Long of Augusta, Ga., Retires—Second Assistant Chief James M. Long of Augusta, Ga., was retired from active service on January 1, 1927, and his name placed on the pension list. He entered the service in October, 1901 and had the honor of being the first man in the department to drive a motorized piece of apparatus.

BUFFALO



Buffalo "Built-to-Your-Order" Apparatus is Making good Wherever Placed in Service

because every piece of apparatus is designed by our experienced fire apparatus engineers in conjunction with the local fire officials to meet the specific requirement of the particular department or municipality making the purchase —and only the highest grade materials and workmanship go into the construction.

Every city, town or community selecting Buffalo apparatus is therefore certain to get dependable apparatus of just the type and size that will most effectively meet their own fire protection requirements.

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Main Office and Factory, Buffalo, N. Y.

BUFFALO

Beat the Fire to it with an **Erick Electric Siren**

For **Volunteer Fire Departments** in towns of from 300 to 5,000 population, there isn't a Siren or a system in the world to equal the Erick. Night and day—year in and year out—it offers best protection to lives and property.

30 Days Free Trial in Your Own Town

That's our method of proving the Erick Electric Siren to be the fire alarm you need in your town. Place it side by side with the best of all other sirens for 30 days and then be your own judge—decide for yourself whether you want to keep it or not.

"The Erick Electric Siren Shrieks its call of danger to every nook and corner of your town—quick, sure and dependable."

"When fire is discovered, call Central from nearest phone."

The Erick is the only Siren using one big whistle on a powerful 3 and 5 h.p. motor which throws its sound evenly in all directions—louder and more penetratingly than all others. Many special features including special designed hood and screen that protects siren from rain, storm, and nesting birds.

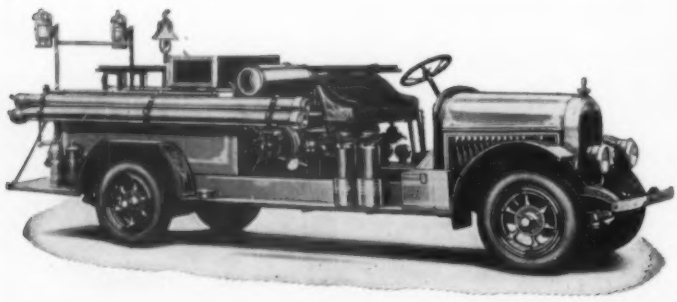
"Central presses button connected to Siren."

Write for full information and details of liberal 30 Day Free Trial Offer

ERICK ELECTRIC SIREN CO., INC.
95 South Wabasha Street
ST. PAUL, MINN.

Reducing the Fire Hazard for the Smaller Community

LA FRANCE BROCKWAY APPARATUS



The smaller community demands, and is entitled to, the same type of high grade fire protection enjoyed in the larger centers.

The LaFrance Brockway is designed to answer this demand.

It is a combination of the light, speedy Brockway truck chassis mounted with American-LaFrance equipment built by the world's oldest and largest manufacturer of fire apparatus.

Best of all, this apparatus is priced at a figure well within the budget of the smaller community.

LaFrance Brockway apparatus can be obtained in chemical cars, combination chemical and hose cars, and pumpers. Your request for illustrated literature will have prompt attention.

AMERICAN-LAFRANCE FIRE ENGINE COMPANY, INC.
ELMIRA, N. Y.

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Chicago	Portland, Ore.
Atlanta	Los Angeles
Baltimore	Kansas City, Mo.
Boston	Minneapolis
Montreal	Vancouver

Canadian Factory; Toronto, Ont.

Effective Streams from Mains

(*Continued from page* 12)

permitted, a hydrant being capable of discharging the flow required for two streams at residual pressures of from five to ten pounds.

While only 45 pounds was considered as being the pressure in the mains in the above table, a higher pressure than this will of course give better results. The flowing pressure in hydrants has a direct bearing on what a pump can deliver. The pressure in the mains directly helps the pumper, acting in a similar manner as a pusher locomotive in a long freight train. As a specific example of this your attention is called to the Fig. 1. This is a hook-up which is employed in a number of cities and apparently proves very satisfactory. The deck gun is mounted on the pumper and the pumper placed in front of the fire building. Single or parallel lines are laid from the nearest hydrant to the pumper to supply water thereto. In this particular sketch, for the purpose of illustration, the distance between the hydrant and the pumper is given as 200 feet. Thus the pressure in the hydrant is forcing the water through the 200 feet of single or parallel lines to the pumper. If a pumper were placed at the hydrant and a deck gun mounted in front of the fire the pumper would have to overcome the friction loss in the 200 feet of hose as well as maintain the necessary nozzle pressure on the deck gun. But by placing the pumper in front of the fire the pressure in the hydrant has the task of overcoming this friction loss which is a distinct help to the pumper. It makes available more pressure for the delivery of streams from the pumper at the fire.

From this illustration it is evident that the higher the pressure in the main, the greater the assistance that is rendered to the pumping engine. In view of this condition, the figures which were given above on the assumption that the main pressure was 45 pounds will in many cases be too low—the mains being capable of supplying a larger number of streams than those stated.

But taking into account the fact that many of the mains in the system are over four years of age and further, that some waters are particularly troublesome through their tendency to cause incrustations in the mains, the figures in the table are safe ones to employ.

Methods of Securing Effective Streams from Small Main Layouts

Where the mains are large the question of securing satisfactory fire streams is a simple one. It is only a problem of getting the proper hose layouts and the proper size of nozzle, at the same time maintaining proper engine pressure.

But where small mains only are available, the situation is far more difficult.

The small carrying capacity of the smaller size mains, the frequency with which dead ends are encountered among small mains and also the tendency in rapidly growing cities to permit small mains of great length to supply growing communities all combine to make a troublesome situation where large calibre streams and large quantities of water are required.

Use Smaller Tip

Where the water supply is so limited from one of these long small mains that a satisfactory stream cannot be obtained without creating a vacuum on the pump, or where great stretches of hose have to be employed, it is sometimes possible to improve the nature of the stream by using a smaller tip.

For example, if a 1¼-inch tip is being employed and under the conditions at the fire it is not possible to secure a pressure which will give satisfactory range with a 1¼-inch tip, the use of a 1⅛ or 1-inch tip may improve the stream to a point where it can be satisfactorily employed.

As a specific example, suppose an engine is able to get only 200 gallons per minute from one of these small mains, and if an attempt is made to get more than that a serious vacuum is created. If a 1¼-inch nozzle is employed on the line the nozzle pressure will be in the neighborhood of 19 pounds per square inch.

If a 1⅛-inch tip is employed and a 200-gallon flow is maintained the nozzle pressure will be 29 pounds: or if a 1-inch tip is employed the nozzle pressure will be 46 pounds.

Note here the improvement in the nozzle pressure by employing a smaller tip. This same point holds in the cases of very long streaches of hose where the friction loss is so great that it reduces the pressure at the nozzle to an unsatisfactory point.

Siamese Lines

In such a situation there is only one means of securing satisfactory streams of larger calibre and that is by the use of siamesed lines possibly taken from remote points. If the nearest main will only give enough water for a small stream it is always possible to employ other small mains in the neighborhood by using long lines to increase the water available.

Siamesing of lines is one of the most important practices in present day fire fighting for by judicious use of parallel lines many of the problems which formerly confronted fire fighters are solved.

The speaker attended a fire in one of the large eastern cities a couple of years ago and noted a great number of streams in operation, none of which had sufficient stiffness to be of real service. As a result fire jumped across streets and continued to spread because the streams had not sufficient range to make it possible for the men to reach the fire from a tenable point. Upon checking up afterward it was found that none of the companies in operation at the fire were using siamesed lines—all were employing single lines—2½-inch hose, with 1¼-inch tips. It is very unlikely, judging from the poor pressures at the nozzles, that there was more than 30 pounds at any one of the tips employed.

Thus if the pressure is poor at the nozzle and the supply is small, the first thing to do, if it will produce satisfactory results, is to employ smaller tips.

If this does answer the purpose and if heavier streams are required, then put into use siamesed lines drawing water from different mains, if the mains are of small capacity and singly are incapable of rendering the supply required.

If, on the other hand, the mains are so far apart that the supplies of two or more cannot be brought together by ordinary layouts of hose, then relaying of lines should be resorted to.

And as a point of interest, the methods of relaying lines should be thoroughly understood by all fire officers. The New York Fire Department at the present time includes in its list of evolutions at the Fire College one which trains the men in the use of engines in relay. When a city the size of New York finds it judicious to instruct the men in this subject, certainly smaller cities will find it equally, if not more, valuable.

While the preceding data would seem to indicate that the problem of streams from water mains is comparatively simple, just the opposite is the case. There are more factors entering into problems in connection with water supply systems than are generally assumed.

In view of such, a knowledge of the capabilities of your water system in the different parts of your city is absolutely essential for it may disclose conditions which could never be guessed.

The method of determining the flow from hydrants is not at all complicated and all that is required is the proper equipment.

Testing of the hydrants and mains connected thereto frequently results in some unforeseen good. Opening of a hydrant to test its discharge might result in finding closed valves on a line, serious incrustations, or might even result in the flushing out of a main and increasing its capacity. There is nothing like knowing precisely what any main in the system can give, or what any particular hydrant is capable of doing both in the way of discharge and pressure.

Marking Fire Hydrants

It is a mighty fine practice to mark hydrants after their capabilities are determined, in such a way that fire companies responding to an alarm will know just what they can expect from any particular hydrant.

Some cities have three classifications into which they group their hydrants, namely, good, fair and poor. Those in the classification "good" would be the ones which could supply one or two fire engines; those in the classification "fair," would be the ones which could supply a single pumper or one hydrant stream; those in the classification "poor" would be the ones which could not be depended upon for either a good engine or hydrant stream supply.

A practice which is in vogue in many fire departments is to paint the barrel of the hydrant green or red. The hood or top of the hydrant is then painted a distinctive color such as aluminum, yellow, or red. An aluminum top might indicate good supply, a yellow top fair supply and a red top poor supply. (Fig. 2.)

New York City, on the other hand, has a method of its own in marking hydrants. The hydrant is marked on the barrel with the size of main to which it is attached. In other words there is a large number painted on the barrel where it is conspicuous, such number being the diameter of the main to which the hydrant is attached. A "6" would therefore represent a 6-inch diameter main, an "8"—an 8-inch diameter main and so on.

Know Your Water Main Layout

Knowledge of your water system, sizes and lengths of mains and the location of hydrants will be the means of eliminating delays and mistakes in operating at fires.

Knowing that a certain section of the city, for instance, is supplied by a single six-inch main will at once tell you what you will need in the way of apparatus to get water from mains having an adequate supply. One of the most effective means of familiarizing your men with the water system is to place in each fire station a black and white print of the portion of the city

which the company in that station covers showing the sizes of mains and the location of hydrants.

The men can mark on the map the classification of the hydrants—having the map marked to tally with the painting on the hydrants. For example, if an aluminum top hydrant indicates a good supply, then on those hydrants connected to large size mains aluminum markings might be made.

Likewise with the hydrants shown on the map having a fair water supply and a poor water supply the corresponding marks might be made.

The serious mistake of expecting too much of small mains will be avoided by this practice.

JOHN DAVIN TAKES COMMAND OF BROOKLYN BOROUGH FIREMEN

A Veteran of 31 Years, Who Rose from the Ranks, Succeeds the Late Chief O'Hara—His Fine Record

DEPUTY Chief John Davin, ranking officer of the fire department in the Borough of Brooklyn, New York City, has been promoted to Deputy Chief in charge of Brooklyn and Queens, succeeding the late Chief O'Hara, who died December 8th from exposure and smoke following a four-alarm Brooklyn fire. The appointment was announced January 4th.

Chief Davin was born in the old 13th ward, Manhattan, 53 years ago. When he was 22 years old, also the age at which Chief O'Hara joined the department, Davin, a big muscular fellow who did not know the meaning of the word fear, passed the examination and was sworn in as a smoke eater January 3, 1896. He celebrated the 31st anniversary of joining the department on the date of his promotion.

Chief Davin's first assignment was Engine Co. No. 4 at Old Slip, Manhattan. In a few years he was made lieutenant of that company.

In 1899 at the big fire in the Home Life Insurance Company's building at Broadway and Warren street, which involved the Rogers-Peet building next door, Fireman Davin fell through the roof and was injured seriously. His earlier fire fighting days were spent in lower Manhattan. He was captain of the first motor fire company in this city.

In 1903, seven years after his advent in the department, he was promoted to captain and put in command of Engine Co. No. 72, University Place, Manhattan, the first motor fire company in the city.

In 1910, having attained the remarkable achievement of standing as number one on both the lists of battalion and deputy chiefs in the examination, he was made a battalion chief and assigned to the Brownsville section. About 1920 he became a deputy chief, second only in rank to Chief O'Hara.

Chief Davin, possessing a fine personality, is well liked throughout the department and is considered an authority on handling many unusual types of fires in the city.

He has served as instructor at the fire college in New York and his many friends throughout the country, made through the fire college and otherwise, will indeed be glad to hear of his advancement.

New Rules of New York Fire Department

(*Continued from page* 17)

b. If personal delivery cannot be made, a copy of the charges and specifications shall be delivered by the officer or house watchman to a person of age of discretion at the residence of the accused. In this event, the person shall be notified orally of the nature of the papers.

c. When the accused cannot be found, or his residence cannot be located, a copy of the charges shall be posted conspicuously at the house-watch desk, in his respective quarters, at least 48 hours before the time set for trial.

SEC. 143. A report of the service of charges and specifications, in all cases of continued absence without leave, shall be forwarded promptly, giving all facts, including the method of service.

SEC. 144. When charges cannot be served on the accused in the manner prescribed, and the posting thereof is resorted to, a report of the fact, including all details of the effort made for personal service, shall be forwarded.

SEC. 145. False testimony, or wilful withholding of facts or other information before the trial Commissioner, shall be made the subject of charges.

SEC. 146. Company Journals shall not be offered as evidence in trials for dereliction of duty or breaches of the rules and regulations, unless the charge involves the misuse of the Journal. Charges shall be sustained by witnesses with personal knowledge of the facts.

SEC. 147. Members preferring charges shall be prepared to sustain them by the production at the trial of competent testimony.

To insure this, they should, at the time of the alleged violation, call it to the attention of members present, specifying its character and notifying them that they will be called as witnesses. Any attempted evasion of this duty on the part of members shall be made a subject for charges.

Suspension from Duty

SEC. 148. Members of the Department may be suspended whenever in the opinion of the Fire Commissioner or the Chief of Department such action is necessary.

SEC. 149. Upon suspension, members shall promptly surrender all Department property to their immediate commanding officer, who shall retain such until the period of suspension ceases.

SEC. 150. Members suspended shall not wear the uniform, and shall report daily, at morning roll call, to their commanding officers.

SEC. 151. Members shall not receive any remuneration for the period of suspension from duty, unless restored to duty after trial.

Courtesies and Salutes

SEC. 152. The salute to be executed by members of the Department shall be that prescribed below. The salute shall always be tendered first by the subordinate in rank, and smartly and promptly acknowledged by the superior. A member of the Department other than the Fire Commissioner, Deputy Fire Commissioner, or Chief of Department, shall not be tendered the salute unless such member is in uniform. Members, during parades, when working at fires, or on occasions when a large number of firemen are assembled for a specific purpose, shall not salute superiors in rank unless they address, or are addressed by them.

THE SALUTE

When commanded to SALUTE! or on occasions when the salute is required:

Raise the right hand smartly till the tip of the forefinger touches the lower part of headdress above the right eye, thumb and forefingers extended and joined, palm to the left, forearm inclined at about 45 degrees, hand and wrist straight; at the same time look toward the person saluted.

When the command TWO! is given, or when the salute is acknowledged, the arm is dropped smartly by the side.

SEC. 153. Members in uniform shall, before addressing a superior officer, or when addressed by him, stand at attention and tender the salute.

SEC. 154. Upon entering the office of the Fire Commissioner, or of any commanding officer, members shall remove the cap and stand at attention.

SEC. 155. When an officer above the rank of Captain enters quarters, members shall assume and maintain the position of *attention* until the officer leaves, or until otherwise ordered.

This shall not apply to members engaged at work in or about quarters.

House watchmen shall arise and salute all officers of the Department upon their entry into quarters.

TO THE NATIONAL STANDARD

SEC. 156. Members shall salute the National Emblem as it passes on all public occasions, ceremonies or parades, or when it is carried into any building, room or other place where they are, as follows:

Not in formation:

In uniform, covered or uncovered: With the hand salute.

In formation:

At a halt: The command shall be brought to ATTENTION! and the commanding officer and such other officers and firemen as are not in ranks shall give the hand salute.

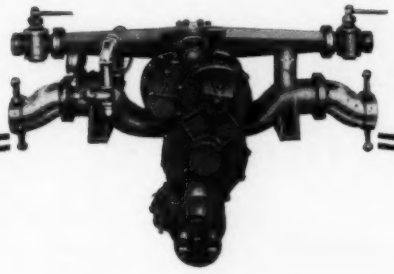
In motion:

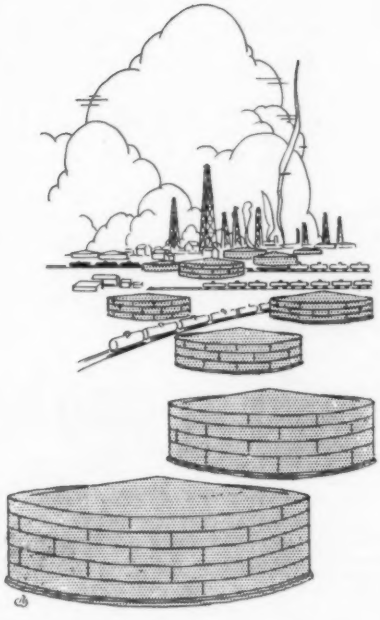
The command shall execute *eyes right* (or *left*) upon command the commanding officer and such other officers and firemen not in ranks shall salute with the hand.

In all cases the individual or command, except when in motion, shall face the Emblem and assume the position of ATTENTION. The salute shall be given when the Emblem has arrived within a distance of six paces and continued until it has passed six paces beyond.

Members of the Department carrying the National Emblem shall not dip it to any person, nor upon any occasion.

(*To be continued*)





Millions of Dollars Worth of Oil Stored on Tank Farms

SURPLUS crude oil, gasoline and other refined products are stored on tank farms. The tanks are of 55,000 and 80,000 barrel capacity each. Sometimes there are hundreds of these large tanks of oil on one farm representing many millions of dollars.

At the mercy of lightning and other causes of ignition, losses of oil, property and life from fire are stupendous. Northern Rotary Pumps are playing a prominent part in conserving the Nation's oil supply, cutting down these losses and saving life.

Northern foam pumping units manufactured in sizes from 100 to 800 gallons per minute are in use by the dozen from coast to coast. One of the largest oil companies in the world has standardized on Northern's for this service after exhaustive tests.

When Engineers of the largest oil companies select Northern and place many repeat orders, their confidence in the pumps has been founded on more than mere mechanical blah. They've been sold by positive secured results.

You can buy this confidence-building pump through 13 Fire Apparatus Manufacturers in the United States who have also made sure they are using the right unit.

Northern Pumps are doing big things in the industrial world — performing exacting services — establishing records for dependability, durability and efficiency.

Many of the world's largest users of pumps buy Northern's regularly.

Northern Pump ads will tell you interesting, impressive provable facts of the things that are being done by Northern Pumps that no other Rotary fire pump has done.

This is one of a series of such ads.

NORTHERN ROTARY PUMPS

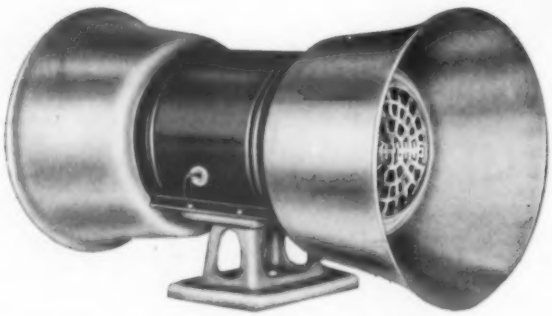
"MORE GALLONS PER HORSE POWER"

NORTHERN FIRE APPARATUS CO.

902—18th Ave. N. E.
MINNEAPOLIS, MINN.

A New Sterling Product

THE LITTLE GIANT ELECTRIC SIREN



WRITE US NOW FOR FULL PARTICULARS. These Little Giant Electric Sirens fill a long felt need for the small towns and villages where buying a Siren has been delayed due to the high cost of larger sirens.

Here at last is the ideal signal for small towns and villages where Fire Siren protection is needed, but where a big alarm is not necessary.

Note This Low Price

$150.00

The Sterling Little Giant weighs only 82 pounds. It can be installed and wired in a few minutes time. The base is cast iron and the entire assembly is finished in Fire Alarm Red Duco.

Sterling Siren Fire Alarm Company Inc.
61 Allen Street - - - Rochester, N. Y.

BADGES
of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Delivery

WE MAKE THE DURABLE
"ROSS" HELMET

OUR LATEST CATALOGUE AND PRICE LIST WILL GLADLY BE SENT ON REQUEST.

EVERSON-ROSS CO.
88 Chambers St., New York

No. 27 Medium Blue

No. 25 Dark Blue

Dressy Uniform Shirts

MADE of medium blue TubTest (fast-color) chambray or dark blue TubTest percale; with two detachable laundered collars to match. This Signal, now specified by Fire Chiefs in several American cities, is favored because it is dressy, practical; because we guarantee absolute satisfaction in every shirt.

SIGNAL SHIRT COMPANY, Racine, Wis.

Quality First — Signal TubTesT — Union Made

M1

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

Doing Away With the Fireman's Tax

It is not very long before the volunteer fireman entering the service begins to see the injustice of being forced to pay for the privilege of fighting a fire and getting his clothes ruined, or perhaps for the trouble of getting up in the quiet of the night to fight a fire when the frigid winter wind sings around the corner of the house. In other words, is it fair to tax the fireman for every fire that he fails to attend?

The volunteer fireman devotes his time for the betterment of his neighbors. In addition he pays a monthly fee to his fire company so that there will be funds in the treasury to pay for the little things needed and to provide means for holding the interest of the men. And on top of that he is forced to pay the absentee tax—that hardly seems fair.

Other means can be provided to induce the men to attend a fire when conditions are not very alluring for donning the fireman's attire. Indirectly, he should be made to feel that he is rewarded for his services.

The company should plan a certain number of functions a year. There might be a clambake in the summer, possibly a fireman's outing, the attendance at a local show, and a fireman's dance in the winter. All of the firemen who are in good standing will be admitted free to all such gatherings that the company arranges.

By a fireman in good standing is meant one who, in the addition to paying all of his company dues, attends all or a certain percentage of the fires that occurred during the period. Of course every rule that is made, is also made to be broken; a member who fails to appear at a fire may have such an absence disregarded by presenting an acceptable excuse to a committee of the company. If the excuse is not acceptable to the committee, the absence will count in determining if the man is in good standing. That is both just and reasonable.

Arrangements could be made with the proprietor of the local theatre whereby the men could obtain a group rate at the time when the company decides to attend in a body—possibly the theatre party will not cost the fire department anything.

At the dances, the men in good standing are admitted free. Being a public function, there will be a profit from such a venture, and this money should not be used for entertainment purposes but should be immediately placed in the apparatus or equipment fund. The townspeople should be made to feel that what ever money they contribute by this means goes, towards the betterment of the fire protection of the place.

There is a certain moral attitude at being admitted free to the company's function. It is the only financial reward that the men receive, and if the men are forced to pay the company dues without receiving the entertainment benefit as a result of their failure to do their duty, either of two things will result. The men will be spurred on to better service, or possibly they will resign from the company. The latter step, in such a case, is not a detrimental one for the company—it is of no value for a body to have a large company membership list if the attendance at a fire is very meagre.

It is doubtful if the enforcement of this plan will result in the decrease of membership. Volunteer fire companies are more than a fire department—they have developed into a social center. To drop out of such an organization would mean to be remote from the companionship of the younger element of the town and the good comradeship for which many of these organizations are noted.

Think this matter over. Is it right to fine the volunteer fireman? The plan suggested does away with the evils of the fine system in order to insure sufficient attendance of the firemen when a fire occurs.

Cape Cod Towns Form Alliance

Seven towns in the Cape Cod section of Massachusetts are forming a permanent mutual aid organization whereby, in case of need, other departments of the association may be called upon for assistance.

At the initial meeting there were thirty representatives from nearby towns, and the meeting was in charge of Chief Ray D. Wells of Falmouth, Mass. The towns that may be in the compact are Centerville, Onset, Bourne, Falmouth, Cotuit, Osterville and Hyannis.

In the event of a fire reaching such proportions that it could not be fought with the equipment at hand, the member department nearest to the fire could be called. The idea is an outgrowth of the Cape Cod Forestry Association in order to protect the large timber lands in the district.

Falmouth, the town in which the organization meeting was held, has appropriated $91,000 that will be spent the coming year in fire protection features. A new fire station will be erected at a cost of $50,000; $11,000 is set aside for a new fire alarm system and fire alarm headquarters, a 1000-, and a 350-gallon pumper will cost $21,000, and a new ladder truck will cost $9,000. In addition to the money that will be spent by the fire department for fire protection, the water department spent $309,000 last year.

In 1919, the town had only hand drawn reels and chemicals; in 1925, the town had six pieces of motor apparatus, a chief's car, five companies, a paid fire chief, and twelve paid firemen.

Hudson Valley Firemen to Meet in June

It has been decided to hold the 38th annual convention of the Hudson Valley Volunteer Firemen's Association at Poughkeepsie, N. Y., on June 21 to 23. Chief Chris W. Noll, who is at the head of the Poughkeepsie Fire Department, is also secretary of the association and is already making preparations to make the convention the biggest and best in the history of this wide awake organization. The other officers are: president, Pierre H. Depew, Nyack, N. Y.; first vice-president, George T. Kelley, Yonkers; second vice-president, William B. Martin, Kingston; treasurer, A. J. Murphy, Kingston and chairman of the board of directors, William H. Frank, Jr., Poughkeepsie.

Tongs Made to Remove Charged Wire

To lessen the dangers of freeing a victim who has come in contact with a charged electric wire, the Ever Safe High Voltage Tongs Company have made a tongs that is said to handle high voltage wires with the utmost safety. The main body of the tongs is of maple wood that has been treated, and the handle is of molded Bakelite. A detachable hook fits over the tapered end of the tongs.

The device has been adopted by the city and the county of San Francisco, Cal., and the Industrial Accident Commission of California. It has been tested and approved by many firms.

Nearby Massachusetts Cities Co-operate

Further development of the Metropolitan aid system in Boston and nearby cities was made recently when the municipalities of Everett, Chelsea, and Revere put into effect a new plan for co-operative fire department work. The scheme was originated by Fire Commissioner Harry J. Harding, of Revere, in conjunction with Chief Arthur L. Kimball, of Revere, Chief Philip L. Ham, of Everett, and Chief David M. Hudson of Chelsea.

Fire alarm telegraph signals are now received from all three cities at each fire department headquarters and running cards have been arranged to provide for inter city response in event of second alarm fires. In cases where alarms are received from boxes near the border lines of the municipalities, provision is made for the response of the nearest fire company to the scene whether from the same city in which the fire is located or from a neighboring city. This plan will obviate the necessity for many long runs.

Upon a second alarm being sounded in Everett an engine company from Chelsea will respond. If Chelsea has a fire between the sounding of the first and second alarms in Everett the fire alarm operator in Revere will send a Revere company to the scene, knowing that the Chelsea department is occupied with a fire in its own city.

A similar arrangement will prevail in the event of second alarms in the other two cities. City Electrician George B. Lydstone, of Everett, took great interest in the plan and had charge of the installation of new signal desks and the laying of the cables.

Boston has a special signal for the dispatching of a fireboat to the islands in the harbor and for sending aid to adjacent

cities. This "out of town call" consists of a preliminary signal of 13 blows, followed by a signal number denoting the island, city, or town. The alarm is sent out for two rounds on the tapper circuit and two rounds on the gongs.

The town of Milton has a tapper for Boston alarms; Brookline responds to fires in the Brighton and West Roxbury districts of Boston and in certain sections of Newton. Cambridge and Somerville work together at fires near the border lines of the two cities. Medford, Arlington, and Somerville have a co-operative arrangement for covering in on multiple alarms.

Chief John W. O'Hearn, of Watertown; Chief W. Harold Hill, of Belmont; and Chief George L. Johnson, of Waltham, work together for exchange of apparatus when necessary in the same manner that Chief James M. Casey, of Cambridge, aids Chief Sewall M. Rich, of Somerville, and the latter reciprocates. In like manner Chief Selden R. Allen, of Brookline, works together with Chief Clarence R. Randlett, of the neighboring city of Newton. It is proposed to have the towns of Wellesley, Needham, and Dover grouped with Newton in a system of mutual aid response to large fires. A special signal desk will be installed for this purpose at the Newton fire alarm headquarters.

A few weeks ago when there were two second alarm fires in the Brighton district of Boston and also two single alarms for other fires in the same section, apparatus moved from Newton, Brookline, and Cambridge to cover vacant stations and Boston apparatus responded from as far away as the Charlestown and South Boston districts of the city. Engine 50 from Charlestown and Engine 39 from Congress Street, South Boston, both went into service at the second large Brighton fire which was in a block of stores on Harvard Avenue.

The advent of motor driven apparatus has made possible long runs to suburban districts whereas in the days of horse drawn vehicles the structures involved in the fires would be consumed before additional aid could be summoned. The mutual aid system as now in force in the Boston Metropolitan area works out effectively and is being copied in many other sections of the country.

HARRY BELKNAP.

Safeguarding Old Type Residential Buildings

(*Continued from page 20*)

lath surfaces which bursting into flames permit the fire to sweep through unchecked long before the fire department can be summoned and arrived.

Although the motorization of fire apparatus has reduced the interval of time between the receipt of the fire alarm and the arrival of the fire apparatus to as low as two minutes, still the fire department has no control whatever over the crucial interval of time between the beginning of the fire and the sending of the alarm. At night especially, this interval might be as long as 15 minutes to a half hour so that the quick response of the department after the alarm is received counts for but little, especially when we know that combustible construction and contents will be feeding the flames for this length of time.

Corridors Should be Carefully Constructed

It is quite generally recognized in new building codes throughout the country that corridors and stairways should be constructed so as to provide at least one hour endurance against fire. Thus metal lath and plaster is particularly suited to afford this protection in old buildings. Its adaptability can readily be appreciated when it is realized that all that needs be done is to rip the wood lath and plaster off of the wood studs on the partitions surrounding the stairways and also on the underside of the ceilings used over such corridors and then to apply metal lath and plaster instead for those parts of the building. At the same time fire stops, such as baskets of metal lath filled with incombustible materials can be placed between the wood studs and joists so as to localize any fire which might break out. It should also be noted that this construction performs the two-fold function of preventing communication of fire and of maintaining a satisfactory fire exit.

Metal lath and plaster are especially adaptable for safeguarding basements in these old time buildings. Many of them have no protection whatever on the under side of the wood joists and application of metal lath and plastering is especially indicated around and over heating plants and smoke pipes and the fuel storage. This type of protection is self-contained and is always on the job, so to speak, so that at minimum cost these old time buildings can be provided with a large measure of safety.

We have also mentioned the serious hazard of open elevator shafts surrounded only by grill work. On August 7, 1920, the Elton Court Apartments at Portland, Oregon, were visited by a fatal fire which caused the death of six people. Only four days after that fire there was another one in the same city in the Glenwood Hotel. There were 67 people in this hotel, but the elevator shaft in this case was completely surrounded with metal lath and plaster which confined the fire to that opening and permitted the occupants to escape without loss of life. This, too, was an old time non-fireproof building and with the results of these two fires before them the city officials of Portland were quick in enacting legislation which would forever prevent the reoccurrance of disaster in buildings of this type.

Survey Made of Institutions

A survey has recently been made of New York State institutions. This study was made by Professor Woolson's department of the National Board of Fire Underwriters with the recommendation of Mr. Sullivan W. Jones, State architect. This resulted in a report recommending the rehabilitation rather than the abandonment of old buildings in the state institutions. It recommended in part, the removal of ordinary plastering around stairs, exits and corridors and its replacement by construction affording one hour protection. Had this not been done it is safe to say that these buildings would soon have been condemned with great financial loss to the taxpayers who would have been called upon for large sums to repalce the old buildings with new ones.

Other materials of construction such as gypsum block, clay tile and solid metal lath and plaster partitions are adapted for use in rebuilding these old buildings. Of course, where the partitions are in good shape it is undoubtedly cheaper to re-lath and plaster on metal lath than it would be to remove the partitions and build entirely new ones, especially if the original ones were bearing partitions.

We have thus in a general way covered the subject of safeguarding old residential types of buildings from fire and in closing desire to point out that there is a special need for legislation which will give mandatory powers to municipal, county and state officials authorizing them to proceed at law whenever necessary to protect lives of those who occupy these buildings by ordering rehabilitation which will afford safety. There is an urgent need for this because tremendous depreciation of such old buildings has been permitted to go on unchecked for years largely because supervision of new construction has taken most of the time of building department officials. There are thousands upon thousands of these buildings valued at millions of dollars which might be saved to posterity if they were protected against the ravages of fire, and thus materially check the ever increasing loss which now amounts to over one-half billion dollars a year. And of transcending importance is protection which will safeguard the lives of the thousands of women and children who are annually sacrificed in these old fire traps.

The fact that buildings are of ordinary construction does not render them unsafe. It is only the lack of protection for the lumber, which has had the unfortunate effect of placing an onus on the whole. Because protected ordinary construction provides one hour safety there is thus a logical reason for taking full advantage of it not only in new buildings, but also in remodelling old ones.

Box 52 Association Meets

The Box 52 Association, of Boston, held their December meeting at fire headquarters in Brookline, Mass., where the members were guests of Fire Commissioner Willard W. Eastabrook and Chief Selden R. Allen.

A visit was paid to the new fire alarm central office of the Brookline department which structure has just been completed and is equipped with the latest Gamewell instruments.

Automobiles were used to convey the party to the fire stations in Brookline Village, Washington Square, and Devotion Street. These buildings, apparatus, repair shops, etc., were inspected and a setting-up drill exhibition and demonstration of the prone method of resuscitation given by members of the department. A final stop was made at Alden Park Manor where the visitors were shown over this modern apartment house with its three separate buildings and its oil burning furnaces.

President George C. Ambrose, Vice-President Bartlett Tyler, Secretary Harry J. Rockett, and Treasurer P. Hildreth Parker, of the Box 52 Association acted as reception committee. Among the guests was Chief W. H. Hill, Jr., of Belmont, Mass.

HARRY BELKNAP.

Roland, Ia., to Purchase Siren—Negotiations are under way for the purchase of a siren for Roland, Ia.

Asst. Chief Armstrong of Macon, Ga., Retires—First Assistant Chief Victor Armstrong of Macon, Ga., has been granted a pension by the city council effective January 1, 1927. Chief Armstrong served the department for twenty-six years and he was severely injured several months ago when his car turned over in a collision while on the way to a fire.

Originators of the Aluminum Box

The Harrington-Seaberg Corp. was the first to make cast aluminum fire alarm signal boxes now conceded everywhere to be the best.

FIRE ALARM BOXES

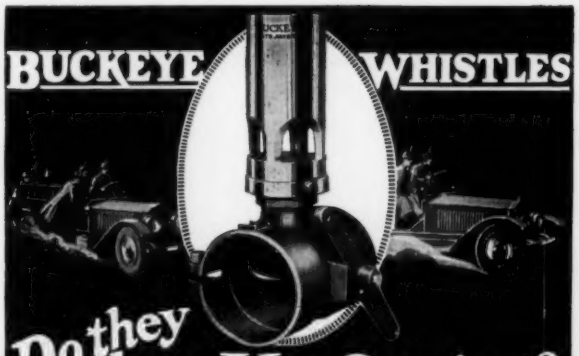
Adequate fire protection demands reliable fire alarm signal equipment. Harrington-Seaberg sixteen round, succession, non-interfering type boxes can be depended upon to operate perfectly **every time.** Made by specialists in the design and manufacture of fire alarm signal equipment. Boxes are cast aluminum, eliminating all possibility of rust or corrosion.

Don't fail to investigate our complete line of fire alarm and police signal equipment before you buy; literature mailed promptly upon request.

HARRINGTON-SEABERG CORP.

Moline *Dept. G* *Illinois.*

BUCKEYE WHISTLES



Do they hear *You* Coming?

You can MAKE THEM HEAR you by using the same type of signal that is being used by the Locomotive. And why not? For 75 years the great American Railroads have been using WHISTLES to attract attention to an approaching train. If more effective warning signals existed, the railroads would be using them today—for they are spending millions annually to prevent the **DESTRUCTION** of **LIFE** and **PROPERTY.** Our Engineering Department has now made it possible for Fire Apparatus to also enjoy the protection of

BUCKEYE WHISTLES

A Warning Signal that Warns

BUCKEYE IRON & BRASS WORKS ~ DAYTON, OHIO

B & M *SIREN*

Did You Hear Our Sirens While You Were in New Orleans?

You could not have helped hearing them. Fire Chief Evans' car had one on, the Ahrens-Fox Aerial Ladder had one on their exhibit car and have made the B & M Siren standard equipment on their apparatus. The American-LaFrance Fire Engine Company had a B & M on their exhibit car; our own demonstrator was there, and I know that you heard the Sirens in the parade. We blew them steadily for one and a half hours without any intermission. The B & M is the only siren today that you can blow for that length of time. Why? Because it is mechanically driven.

Write for complete information. We gladly send B & M Sirens to any city on approval, transportation prepaid.

B & M Siren Manufacturing Co.

Lester H. Miles, Owner

931 So. Main St. Los Angeles, Calif.

Successful Since Sixty-Eight

Worcester Fire Alarm Signals

Nothing is more important in fire service than the alarm. Protect yourself by taking advantage of the experience of the oldest fire alarm manufacturing specialists.

The Worcester Fire Alarm Signal is made to meet your requirements, either steam or air operated. Write for catalog R-51.

Union Water Meter Co.

WORCESTER, MASS.

New York Office: 50 Church St.

Philadelphia Office: 539 Real Estate Trust Bldg.

Chief James C. Mooney of the City of Watertown, South Dakota Fire Dept. writes:

"We have some of your Dontfear Masks and like them fine."

Much Better Than We Expected is the verdict of those using the

DONTFEAR

Smoke and Fume Respirator

Send For Descriptive Catalogue

No Sponge. Price $5. With Airtight Goggles $5.60

Gibbs-Wahlert Mask Co.

388 Jay St., Opp. Fire H'q'trs Brooklyn, N. Y.

C. A. M.

The Greatest of All Fire Apparatus Sirens

Unconditionally Guaranteed

See our page ad in last issue

C. A. M. Manufacturing Co.

802 Humboldt Bank Bldg., San Francisco, Cal.

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.

230 West Randolph St., Chicago, Ill.

The City of Wheeling just purchased 5,000 feet of Bi-Lateral Fire Hose coupled with rocker lug couplings. This city purchased 5,000 feet last year and it is believed that as soon as their department is equipped with this improved construction in fire hose they will be able to cut their hose expense to less than half of what it has been previously. Let the BI-LATERAL FIRE HOSE COMPANY tell you why this may be true.

Novo Acid Jars & Holders

of every description, stronger than lead and none-corrosive. Used by departments throughout the country.

Chemical Tanks and Lally Quick Opening and Self-packing Top for Chemical Tanks

Lally Improved Fire Hose Couplings, Fire Extinguishers and Charges, Fire Hose and Fire Department Supplies in General

Send for Complete Catalog

LALLY FIRE APPLIANCE CO.

Wilmington Brass Co., Wilmington, Del.

LARKIN Shut-off Nozzles

Over 2000 Fire Departments have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

Write for catalog

The LARKIN Mfg. Co.

Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

HALE PUMPS

IF you have a job which is uncomfortably close, try a Hale pump. Hale Dreadnaught Pump efficiency is enough higher than other pumps to create leeway where no leeway exists.

HALE FIRE PUMP CO.

Conshohocken, Pa.

A Word to Our Readers:

DO you ever stop to think that every advertiser in these pages offers either a product or a service that has certain unique advantages which he believes will interest and be of value to you? Otherwise it wouldn't be worth his while to advertise.

Almost every page contains the offer of some product or service that you would find of value in your department. It will pay you to read the advertising pages as carefully as you do the editorial.

"The wise man is he who is always willing to learn." It will pay you to read the advertising pages carefully. THE PUBLISHERS.

"Pirsch" Builds Complete Line of Motor Apparatus

Let Us Submit Bids on Your New Apparatus

Catalogue No. 16 Now Ready! Send for it.

PETER PIRSCH & SONS CO.,

Since 1857

Kenosha, Wisc.

FIRE DEPARTMENT ACTIVITIES

More Water Towers for San Francisco—Two thirty-foot water towers were ordered for the San Francisco, Cal., fire department.

Turtle Creek, Pa., Has New Pumper—A new 1,000-gallon Ahrens-Fox pumper has successfullv passed the Underwriters tests at Turtle Creek, Pa.

Fire Alarm Cable Installed in Greensboro, N. C.—A new fire alarm cable has been cut into the system at Greensboro, N. C.

Atlanta, Ga., Celebrates Opening of New Station—A barbecue served in the new fire station was the way that Atlanta, Ga., celebrated the opening of its new fire station.

Pipestone, Minn., Has Anniversary—The firemen of Pipestone, Minn., are planning to celebrate the fortieth anniversary of the volunteer fire department.

Alton, Ill., to Purchase Two Pumpers—The council of Alton, Ill., are considering the purchase of two 900-gallon pumpers.

Former Fire Commissioner of Dedham, Mass., Dead—William C. Williams, a former fire commissioner of Dedham, Mass., died at his home following a long illness.

Ex-Chief of Bayonne, N. J., Dead—John E. Jones who was formerly chief of the Bayonne, N. J., department, died at his home at the age of sixty-five. He is survived by a widow and one son.

S. Bellingham, Wash., Awards Building Contract—A contract has been awarded for the construction of a fire station in South Bellingham, Wash. The building will be of tile and stucco construction.

Quincy, Mass., to Have New Ladder Company—Ten additional firemen will be appointed in Quincy, Mass., to enable the formation of a new ladder company. The station is being erected in the Atlantic district.

Metuchen, N. J., Considers Paid Department—The formation of a paid fire department is being considered by the council of Metuchen, N. J. It is estimated that between $20,000 and $40,000 are required to establish the department on a paid basis.

Former New England Firemen's President, Dead—Dexter E. Wilbar, a veteran of the Civil War, and formerly president of the New England Veteran Firemen's Association, died in Brockton, Mass., at the age of eighty.

Toy Train Causes Large Fire in Morristown, N. J.—Sparks from an electrical toy train in the show window of a store in Morristown, N. J., set fire to the cotton decorations around the tracks. The damage was estimated at $50,000.

Replacement of Cable Needed in Worcester, Mass.—According to Morey F. Orrell, superintendent of the fire alarm system of Worcester, Mass., a large amount of the rubber covered cable laid underground is in need of replacement by lead covered cables.

New Company to Manufacture Fire Apparatus—The Nebraska Auto and Truck Manufacturing Company of Omaha, Nebr., will soon start in the building of fire apparatus. This announcement was made by Louis Nash, president of the concern.

More Apparatus Purchased for Syracuse, N. Y.—Three pieces of Seagrave fire apparatus have been purchased by Syracuse, N. Y. The purchase includes a pumper and two aerial ladders.

Franklin Wentworth Gives Fire Prevention Talk—Franklin H. Wentworth, secretary of the National Fire Protection Association, addressed the Wellesley Club in Boston, Mass., on the subject of Fire Prevention.

Chief Ordway of Reading, Mass., Injured.—While fighting a fire that caused a damage of $4,000, Chief O. O. Ordway of Reading, Mass., fell down a flight of stairs and received a gash in his head.

Dispute Over Paying Weehawken, N. J., Volunteers—The volunteer firemen of Weehawken, N. J., have not received their annual pay of $25. There is considerable dispute concerning who should sign the claim vouchers that would enable the men to get their pay

Newark, N. J., Fire Bug Uses Acid—Some fire bug in Newark, N. J., has been using acid at the base of columns of buildings that he wished to destroy in order to make his work more destructive. The matter has been turned over to the Bureau of Combustibles by Chief Towey for investigation.

Boston Inspectors Active During Xmas Week—A force of twenty-five inspectors from the Bureau of Fire Prevention in Boston, Mass., was detailed to the business section during the rush of Christmas holiday shopping to see that all boxes and papers were removed from the cellars. According to Supt. Peter E. Walsh, six thousand inspections were made during the month of November.

Siamese Hose Line Invented—A siamese hose line has been invented by John J. Lawless of Portland, Ore., and the object of the invention is to enable trolley cars or other vehicles to pass down a street that is blocked by hose lines. In use, the car approaches one of the lines and the siamese or extra line is laid to the rear of the vehicle. The front hose line is disconnected, and the car permitted to proceed without any damage to the hose, and without any interruption to the flow of water.

J. H. Story with Seagrave

J. H. Story, formerly a representative of the Stutz Fire Apparatus Company, with offices at Asbury Park, N. J., is now affiliated with the Seagrave Corporaton.

He will be a Seagrave representative, operating from the New Haven, Conn., branch office and will be associated with H. Y. Ensign.

NEW YORK NOT ENTHUSIASTIC OVER FIREMEN'S RETIREMENT BILL

Bill to Change Present Methods Has Cool Reception at Hearing—Not Likely to Pass

THE hearing on the bill introduced last October by Alderman Edward W. Curley, to amend the New York City Charter to authorize the fire commissioner to retire any member of the fire department who shall have reached the age of sixty-two years, was held in the Aldermanic Chamber of the Board of Aldermen on January 6th before the Committee on Local Laws.

Nobody appeared in favor of the measure, although it was duly advertised and all parties in interest were notified of the proposed hearing. Alderman Curley, the introducer of the measure and incidentally the chairman of the committee, relinquished the chair and took the floor.

He said: "Although I introduced this bill, I am not the sponsor for it. It was introduced by request. I am not committed to the bill. My mind is still open to argument pro and con. I have no desire to impress my views on the members of this committee. I would rather hear from somebody else who favors this measure." Nobody appeared.

Then the committee called for those in opposition. Joseph J. O'Reilly, social secretary of the Uniformed Firemen's Association said: "If you make this bill mandatory instead of permissive, the firemen will have no objection. We object to it in its present form—it is a permissive measure. The bill in its present form will keep some men in the department at 72 years instead of 62 years of age. They will be subservient to the powers that be and will remain in the service. If you wish to amend it by making it mandatory, then nobody will be subservient."

Alderman Curley then asked Mr. O'Reilly: "Would you approve of this bill if it is made mandatory?"

O'Reilly—"I would rather you put it the other way, Alderman, if it is made mandatory, we will not object to it."

Mr. O'Reilly then declared that if such a permissive measure were to go to the people for a referendum, the people would most certainly vote it down.

The bill, if passed, would affect about one-third of the deputy chiefs, about ten per cent of the battalion chiefs and about five per cent of the captains of the New York Fire Department. It would affect Chief Kenlon himself, although he is not the specific object of the bill, as so many misinformed persons believe. The bill is the vehicle of a committee of eligibles on various lists for promotion who are very much dissatisfied with the lack of progress being made toward promotion. They feel that the department is topheavy with senior officers, many of whom, they say, are no longer physically fit and should retire in favor of the more active and virile men.

W. J. DALY.

PROPOSED IMPROVEMENTS

Huntington Beach, Orange Co., Calif.—City Council have decided to purchase a Foamite truck and equipment for the fire department, and to provide for more adequate quarters and increase the force.

Ventura, Ventura Co., Calif.—The $50,000 bond issue for fire department improvements was defeated at recent election. Funds were to have been used for fire alarm system, new piece of apparatus, fire hose and erection of fire station.

Goshen, Elkart Co., Ind.—A new American-LaFrance pumper was purchased for the fire department here.

Neola, Pottawattamie Co., Iowa.—After recent fire it is being urged that new apparatus and equipment be purchased for the fire department.

St. Paul, Ramsey Co., Minn.—Owen C. Dunn, Chief of Fire Dept., writes that fire department is contemplating the purchase of 10,000 feet of hose, two pumpers and a city service ladder truck.

Pleasant Hill, Cass Co., Mo.—Fire department urging that a pump be purchased and placed on the new truck. Estimated cost $600.

Lincoln, Lancaster Co., Nebr.—City Commissioner Gillaspie stated that new fire stations should be erected in different parts of the city and that additional fire protection is especially needed in South Lincoln.

Auburn, King Co., Wash.—Fire department circulating petitions asking that city vote in favor of an $18,000 bond issue at the next city election for the purchase of a new piece of fire apparatus.

Edgewood (Mail Birmingham), Jefferson Co., Ala.—Mayor Chas. E. Rice and the Board of Aldermen are planning the organization of a fire department with a motor driven engine and other necessary equipment. New fire station to be erected.

Oakland, Alameda Co., Calif.—An ordinance appropriating $650 for the purchase of eight 6-volt sirens for use of the Oakland Fire Dept. was passed by the City Council.

Glen Ellyn, Du Page Co., Ill.—A new Seagrave Suburban fire truck was purchased for the fire department here, at cost of $6,500.

Paterson, Passaic Co., N. J.—Considering the construction of a fire station in the Peoples Park section of the city.

Evanston, Cook Co., Ill.—New fire station to be erected early this coming spring in Boltwood part at Dodge and Lee Streets.

South Bend, St. Joseph Co., Ind.—Mayor J. C. Braday urging the immediate call for bids for the purchase of a city service truck to be placed in central fire station. Council appropriated $10,500. Mayor also urged the erection of a bungalow-type fire station at the intersection of Brook St. and Lincoln Way East, and the installation of a combination chemical and hose truck in it.

Lewiston, Niagara Co., N. Y.—Bids received by the Village Board for the erection of a fire station. H. H. Hull, Village Clerk.

Green Island (Mail Troy), Albany Co., N. Y.—Village Board of Trustees making plans for improvements in the fire department; to include the installation of an electric siren. Herbert D. Halloway, Chief of Fire Dept.

Locust Gap, Northumberland Co., Penn.—The Locust Gap Fire Co. planning to purchase a new fire truck.

Townsend, New Castle Co., Del.—Volunteer firemen raising funds for the purchase of fire apparatus.

Quinter, Gove Co. Kansas.—A fire station is to be erected shortly in this city.

Beaver Dam, Dodge Co. Wis.—Town contemplating the purchase of fire apparatus to be used in the country districts.

Gibbstown, Gloucester Co., N. J.—At recent election Wm. Duncan was re-elected pres. and John S. Johnson, Chief of the fire department.

Elmer, Salem Co., N. J.—Fire department has asked the Borough Council to provide an appropriation for the purchase of a motor chassis for the old hook and ladder engine and to equip it with chemical tanks.

Waterbury, New Haven Co., Conn.—Plans being made for the erection of two new fire stations for this city.

Lyons, Cook Co., Ill.—New fire apparatus to be purchased.

Machias, Washington Co., Maine—Plans are being made for the purchase of a new pumper for the fire department.

Rutherford, Bergen Co., N. J.—A movement has been started for securing another pumper for the fire department.

Schenectady, Schenectady Co., N. Y.—Superintendent of Bureau of Fire Alarm in his report again recommended the building of a new signal station and the purchase of entire new fire alarm apparatus.

Harrison, Westchester Co., N. Y.—Plans for the erection of a new fire house and the organization of a new fire company are progressing under the direction of the Board of Commissioners.

Locust Gap, Northumberland Co., Penn.—Locust Gap Fire Company definitely decided to purchase a piece of apparatus.

Birdville, Allegheny Co., Penn.—Birdville and Harrison Heights considering the organization of one fire company to serve both districts.

Ford Pumper For Sale

Built during winter of 1924-25. Since buildings have found apparatus too small for our use and replaced with bigger machine.

Exceptional opportunity to secure a good pumper at low cost.

Write to F. E. Ingals, Guilford, Conn., for full information.

1-12.

For Sale Fire Apparatus

One Brockaway Motor Truck and one G. M. C. Motor Truck. These trucks have been in use by the Fire Dept. of the Village of Rockville Centre, and are now offered for sale to the highest bidder, having been replaced by more modern apparatus. Bids should be addressed to the Board of Trustees, Village of Rockville Centre, and delivered to the Village Office on or before the next meeting of the Board to be held on December 15, 1926.

For further information get in touch with Mr. O. F. Conger, Chief of the Fire Dept., Rockville Centre, N. Y.

12-10, 25, 1-12.

CONVENTION DATES

Jan. 11-13, 1927—ILLINOIS FIREMEN'S ASSOCIATION. 39th Annual Convention, Quincy, Ill. Secretary, Roy W. Alsip, Champaign, Ill.

Jan. 18-20, 1927—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. 45th Annual Convention, Columbus, Neb. Secretary, H. A. Webbert, Kearney.

Jan. 29, 1927—BERKS COUNTY FIREMEN'S ASSOCIATION. Meeting at Reading, Pa., with annual banquet.

June 21-23—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 38th Annual Convention, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Fire Department, Poughkeepsie.

June 21-23, 1927—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, Congress Hotel, Portland, Me., Secretary, Chief John W. O'Hearn, Watertown, Mass. For reservations address Geo. F. Cobb, Traffic Manager, 774 Albany Street, Boston, Mass.

Aug. 14-16, 1927—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual convention, Elmira, N. Y. Frank A. Emden, secretary-treasurer, 1200 Lenox Ave., Utica, N. Y.

Sept. 1927—KANSAS STATE FIRE CHIEF'S AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Sept. 7-8, 1927—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8, 1927—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Modern Fire Alarm Signaling

(*Continued from page* 16)

TROUBLE.—Lights one circuit light but no buzzer sounds.

CAUSE.—Buzzer switch in off position.
Buzzer out of adjustment.
Buzzer shorted.

REMEDY.—Place switch in proper position.
Adjust buzzer properly.
Test buzzer and replace.

TROUBLE.—One or two blows struck then signal comes in.

CAUSE.—Calling party has tapped key and not pushed in switch on hand set.
Plugs of hand set not in jacks when signal was sent in.

REMEDY.—Instruct men how to operate system properly.

This article is intended to present a detailed description of the workings of this system and if one should desire more detailed information, the author will be glad to supply it upon request.

The next article will take up P. B. X. switchboards and test sets, including description, installation and maintenance.

Hickey Advanced to Executive Work

Herbert J. Hickey, secretary to the fire commission of Boston, Mass., has been promoted to the newly created post of executive secretary of the Boston Fire Department with a salary of $3,300 a year.

Herbert J. Hickey

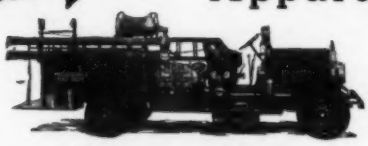
Mr. Hickey received the degree of Bachelor of Laws from the Suffolk Law School of Boston. He was appointed to the fire department in 1911 and has served as chief petty officer in the United States Navy during the World War. Mr. Hickey has been secretary to Fire Commissioners Charles D. Daly, Charles H. Cole, John Grady, John R. Murphy, Theodore A. Glynn, Eugene C. Hultman to Acting Commissioners, Joseph P. Manning, William J. Casey and Thomas F. Sullivan.

In a general order issued by the chief on July 18, 1919, he was commended for his quick thinking and good judgment in notifying the fire alarm office when he noticed a 1,000-gallon tank wagon collide and spill gasoline on the street. As a result of the quick work in notifying the fire alarm office, the fire apparatus arrived on the scene before a blaze occurred, and a serious fire was averted.

Changes are being made in executive and clerical offices as part of Commissioner Hultman's plan for increasing the efficiency of the department.

HARRY BELKNAP

Sanford **Fire Apparatus**



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Builders of Quality Products for 15 Years

Eastman Improved Platforms and Holders

are indispensable where high pressure service is required. With Eastman equipment any size streams can be easily handled by one man.

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Eastman Nozzles and DeLuge Sets

are designed by engineers who for over thirty years have specialized in equipment for producing fire-fighting streams that are unsurpassed for solidarity, distance and effectiveness.

Samuel Eastman Co.,
Concord, N. H.

Fire Apparatus
Fire Department Ladders
Fire Fighting Appliances

Write us when interested

COMBINATION LADDER CO., Inc.
381 Fountain St. **Providence, R. I.**

CLIFTON SALVAGE COVERS

have all the good points.

- *The most convenient size—12 x 18 feet*
- *The right weight—About 38 pounds*
- *Strong, heavy duck and lapped seams*
- *An absolutely waterproof double coating of a high grade, long life, rubber compound*

Many large Protective Departments use them
Send for our circular

CLIFTON MFG. CO.
Jamaica Plant District **Boston, Mass.**

JOHN H. CLAY, INC.
1320 Ridge Ave., Philadelphia, Pa.
Established 1864

Clay Automatic Door Spring Devices for fire stations save valuable minutes in getting to fires. Write for details.

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Illustrated Catalog gladly sent on request.

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RED ARROW SIREN

Siren with Storm Hood

1. Double-tone, and of greatest carrying power.
2. Ball bearings throughout.
3. Accurately machined and balanced.

30 Days' Free Trial

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DECOT MACHINE WORKS
Sauk City, Wis.

Quick-Acting Reliable

Anderson-Hale Improved

FIRE STATION DOOR OPENERS

Over 1,300 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening. Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.
Mfrs. Motor Fire Equipment and Fire Supplies
Kansas City, Kansas

MORSE
FIRE BOAT EQUIPMENT

Invincible and Callahan Nozzles

Fire Department Supplies

are in use throughout the country and giving unsurpassed service.

Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

You will find that it pays.

Write for Catalog

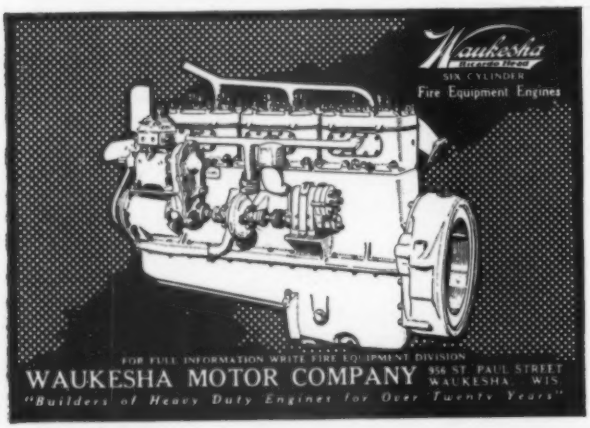
Andrew J. Morse & Son, Inc.
221 High St. Established 1837 Boston, Mass.

EDDY
Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.
Waterford, N. Y.
James B. Clow & Sons, Chicago Agents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SIX CYLINDER
Fire Equipment Engines
FOR FULL INFORMATION WRITE FIRE EQUIPMENT DIVISION
WAUKESHA MOTOR COMPANY 956 ST. PAUL STREET WAUKESHA, WIS.
"Builders of Heavy Duty Engines for Over Twenty Years"

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ROTARY PUMPS
FIRE HYDRANTS

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WATEROUS FIRE ENGINE WORKS
St. Paul, Minnesota

The "Corey" Fire Hydrant of the improved Rensselaer type is the easiest to operate of any on the market.

Ask for prices and details

FILL IN AND MAIL TO
RENSSELAER VALVE CO., Troy, N. Y.
Send me Hydrant Book, No. 9.

Name .....

Street ..... City .....

Have You Seen It?

If you are not already an honest-to-gosh subscriber to this magazine, you will be interested in the coupon at the bottom of page 49.

Fire Engineering

FALSE ALARMS

TACT WAS REQUIRED

The captain of the village fire brigade was enjoying himself tremendously and the party he was giving was going like a well-oiled clockwork.

But just at the most inopportune moment a fire broke out.

"Can't 'elp it!" said the captain to the panting individual who had brought the news. "I can't go to no fire tonight—I'm giving a party!"

"But you surely aren't going to shirk your duty because of that?" said the man in tones of great surprise.

"No, it ain't so much that. But I can't show the missus up in front of 'alf the neighborhood. Every one in the 'ouse 'as been admirin' 'er new coal scuttle in the drawin' room—and it's my 'elmet."

—*London Tid-Bits.*

NO NEED TO HURRY

The following story is told of a fireman out in Indianapolis who was badly stricken with love.

As they sat on the bench in the park she said nervously, "You'll have to wait; you must give me time."

"How much time?" asked the lovesick fireman. "A week, a month, or even a year?"

"Don't be impatient little boy," she cooed. "Just wait until the moon gets behind that big cloud."

A FIREMAN'S LIFE

Yes, this life may seem rather easy,
This waiting around for the bell.
But just put this down for your motto,
That when it isn't easy, it's HELL.
When fire is nigh,
"God and the firemen," is the people's cry;
When the Fire is out and all things righted,
God is forgotten and the firemen* are slighted.

MARTIN J. FLAHERTY,
East Boston, Mass.

* They are often told to get the washtubs out.

THE OLD STORY

"My stars," carpingly ejaculated a hypercritical guest. "The town look like a fire trap. Why don't the officials buy some fire fighting apparatus?"

"Oh they will," replied the landlord of the Pruntytown tavern. "Just as soon as we have a good big fire and they see the need of the equipment."

—*The Fire Plug.*

KNEW THE TROUBLE

The following anecdote was contributed in the course of a discussion at the Massachusetts Fire Chiefs' Club by Chief George L. Johnson of Waltham, Mass.

"We pulled up in front of a bad apartment house fire one night. There was plenty of smoke and it was going great. A couple of the boys rushed upstairs and pulled a fellow out from under a bed. He was nearly gone. We started working over him and a doctor was sent for.

"After a few minutes of first aid treatment, the victim opened his eyes. I leaned over him and was just able to hear him whisper, 'Tell those bums to get off my back. I ain't dead, I'm pickled.'"

ARTHUR B. WHITE

YES, ON THE LEVEL!

One of the firemen spent part of his time off in visting a friend of his in a nearby company. The host showed the visitor about and explained to him the various good features of his fire station and especially some of the high lights of a new rescue car that was stationed in the house.

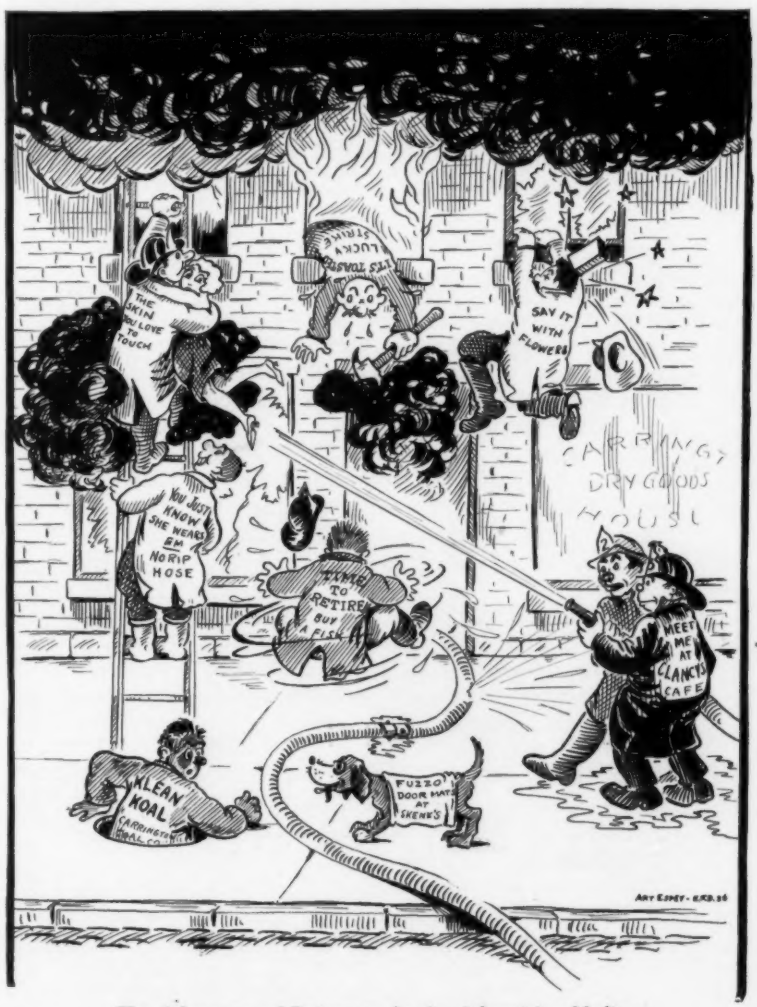
The guest inquired, "On the level, Frank, can that car really go anywhere in high gear?"

"Oh, yes," replied the host, "on the level."

WARM FRIENDS

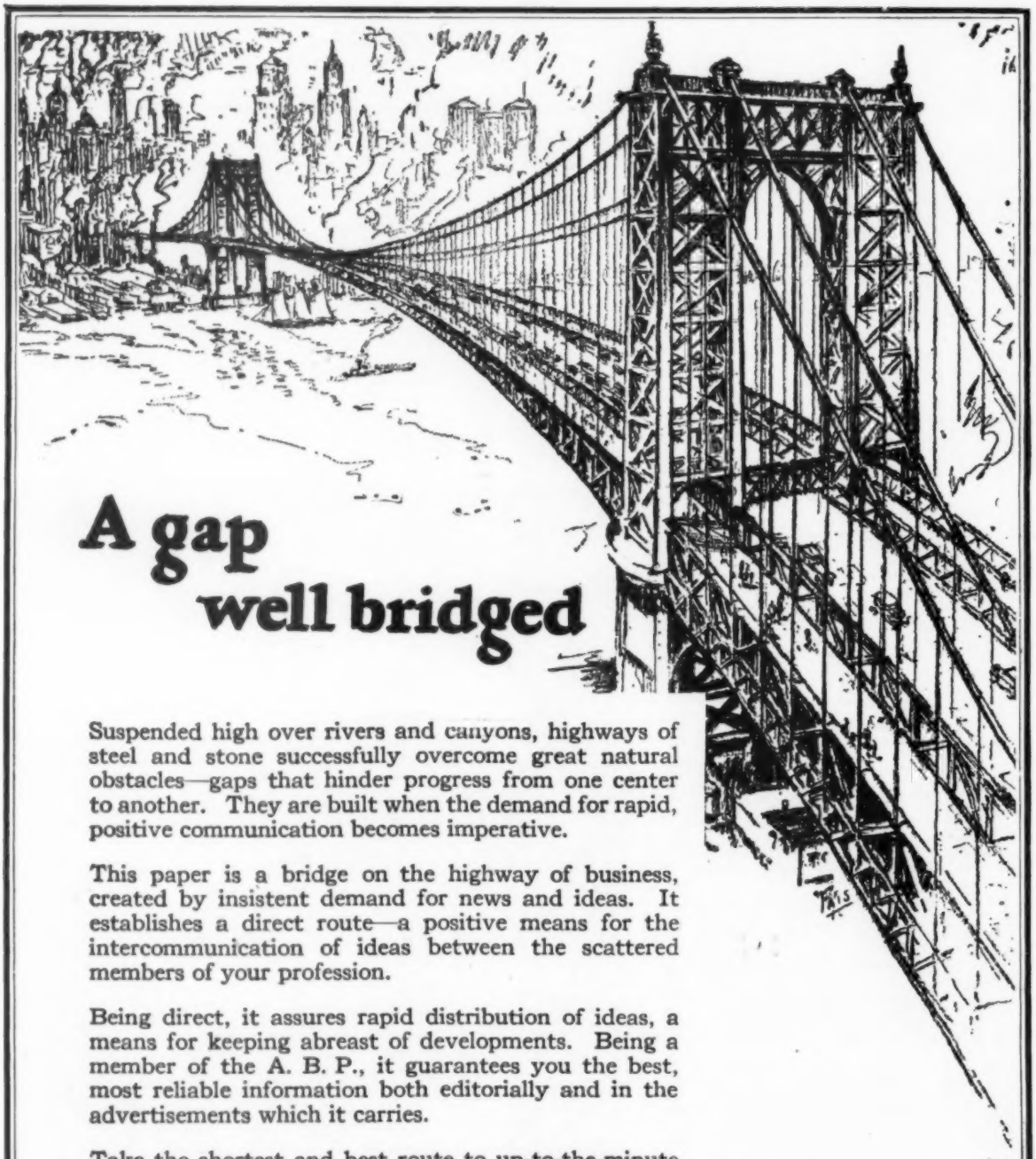
The following item has appeared in a rural newspaper:

Mr. and Mrs. Arthur Jones wish to express thanks to their many friends and neighbors who so kindly assisted at the burning of their residence.


THE SKIN YOU LOVE TO TOUCH
LUCKY STRIKE
SAY IT WITH FLOWERS
CARRINGTON DRY GOODS HOUSE
YOU JUST KNOW SHE WEARS 'EM NO RIP HOSE
TIME TO RETIRE BUY A FISH
MEET ME AT CLANCY'S CAFE
KLEAN KOAL
FUZZO DOOR MATS AT SKEW'S
ART ESPEY - U.F.D. 26

The Advantage of Raincoats As An Advertising Medium

Perhaps applying the artistic display on the yellow slickers of many of the "college boys" on a commercial basis, a number of business men of Carrington, N. D., have furnished black rubber coats to the fire department. Each coat bears an advertising legend in white paint, and since the cost of the coat is $5.50 each, and judging from the large number of people that turn out at fires, the advertizing medium is indeed a good one. "Art" Espey has visualized a possible fire scene of the future. If the wearer of the "Skin You Love to Touch" coat is always assigned to such demonstrations, the position will surely be more highly prized than that of chief.



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This paper is a bridge on the highway of business, created by insistent demand for news and ideas. It establishes a direct route—a positive means for the intercommunication of ideas between the scattered members of your profession.

Being direct, it assures rapid distribution of ideas, a means for keeping abreast of developments. Being a member of the A. B. P., it guarantees you the best, most reliable information both editorially and in the advertisements which it carries.

Take the shortest and best route to up-to-the-minute news. This A. B. P. paper leaves no gap in supplying information which is helpful to you in the conduct of your business.

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FIRE ENGINEERING is the only fire journal that has membership in The A. B. P.

A Nation-Wide Service for Better Protection Against Fire Loss and Water Damage

PROTECTION A.D.T. SERVICES

The remarkably efficient A. D. T. System of Central Station Night Watch and Fire Alarm Service has played a large part in helping to cut down the fire loss of the country; and the A. D. T. System of Sprinkler Supervisory Service has been instrumental in saving millions of dollars in water damage.

An Invaluable Service

It is generally known that water damage in sprinklered premises is considerably greater than fire damage, and it is a fact that in a great majority of sprinklered equipments no one on the premises knows how to shut off the water. Hence, the great importance and value of our Supervisory Service in not only recording water flows, but immediately sending representatives who know how to stop them.

Over $20,000,000,000

worth of property throughout the country is protected by A. D. T. services, and fire officials in cities everywhere are finding A. D. T. cooperation an invaluable aid in their work.

Send for Complete Information!

Controlled Companies

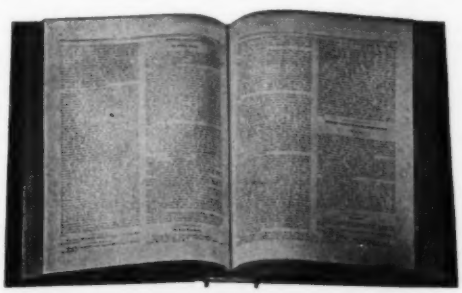
American District Telegraph Co.
Executive Offices, 183 Varick St.
New York City

A better, safer and surer way to prevent and extinguish chimney fires is offered to fire chiefs and fire prevention bureaus in the use of "Kilsoot."

Write for liberal samples and full details regarding this remarkable chemical product—gladly furnished upon request.

KILSOOT CHEMICAL COMPANY, INC.
530 West 58th St., New York

Also makers of "Chimnee-Sweep"



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225 W. 34th St., N. Y. C.

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The Burrell All Service GAS MASK

The Standard for the Fire Fighters of America

The Burrell All Service Gas Mask is the only mask approved by the United States Government for complete protection against Carbon Monoxide, Ammonia and every known poisonous gas. Write for Bulletin F-3.

Mine Safety Appliances Co.
Braddock Ave & Thomas Blvd. Pittsburgh, Pa.

MATHEWS

(Reg. U. S. Pat. Off.)

FIRE HYDRANTS

for

DOMESTIC

and

HIGH PRESSURE

Service

Note—

The positive waste valve.

All operating threads are above the stuffing box.

No toggles, small screws or other small, quick-wearing parts.

All moving parts are bronze or bronze bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

Valves and Boxes
Cast Iron Pipe and Fittings

R. D. WOOD & CO.
Phila., Pa.

New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc
35 Warren St., New York

D. A. Woodhouse, Pres. and Gen. Mgr. — George J. Kuss, Vice-Pres. and Treas.

JACOB REED'S SONS

Founded 1824 by Jacob Reed

FIREMEN'S UNIFORMS

Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.

Reed's Uniforms are most economical because they represent full value for the amount expended.

Write for catalog and prices.

1424-1426 Chestnut St., Philadelphia, Pa.

MAXIM

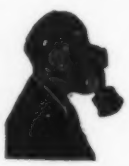
FIRE APPARATUS

All Types — All Sizes

Send for Complete Information

MAXIM MOTOR COMPANY, Middleboro, Mass.
Metropolitan Sales Agents:
The Woodhouse Manufacturing Co., 35 Warren St., New York

The Schavoir Gas Mask



The latest and most advanced development in gas masks. Fire officials everywhere should get the facts.

Write for Complete Information

Schavoir Rubber Co. Stamford, Conn.

The Perfect Satisfaction and economy of wearing the

"FAMOUS KALAMAZOO"

Firemen's Uniforms has been proven by thousands of firemen. Catalog F501 will tell you all about them.

The HENDERSON-AMES CO.
KALAMAZOO, MICH.

HAHN

Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

Hahn Motor Truck Co.,
Hamburg, Pa.

All Subscribers are Invited to Use This Page Regularly

Fire Protection Equipment And Supplies

1 Acid Siphons
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
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7 Alarm Systems, Industrial.
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10. Asbestos, Clothing.
11. Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brake, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Cable & Wire, Fire Alarm.
23 Caps, Firemen's.
24 Chains, Non-Skid, Fire Apparatus.
25 Chassis for Fire Apparatus.
26 Chemical Engines and Tanks.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers, Fire, Powder.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
40 Fire Drills & Organizations.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flafe Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.

Whenever you are in the market for new equipment you naturally want to get complete information from all reliable manufacturers before you place the orders for your department.

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Nos.....

Nos.....

Nos.....

Date.....

Name.....

Position.....

Street..... .....

City and State.....

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55 Hose Clamps.
56 Hose Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Priming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs' Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

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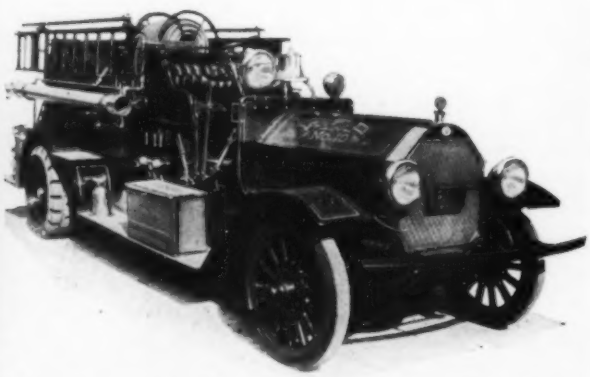

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- Motion picture film exchanges;
- Large refrigeration plants;
- Fiber and rag warehouses;
- Tall office buildings;
- Piano factories;
- Armory (during merchandise exhibitions);
- Large area celluloid merchandise factory;
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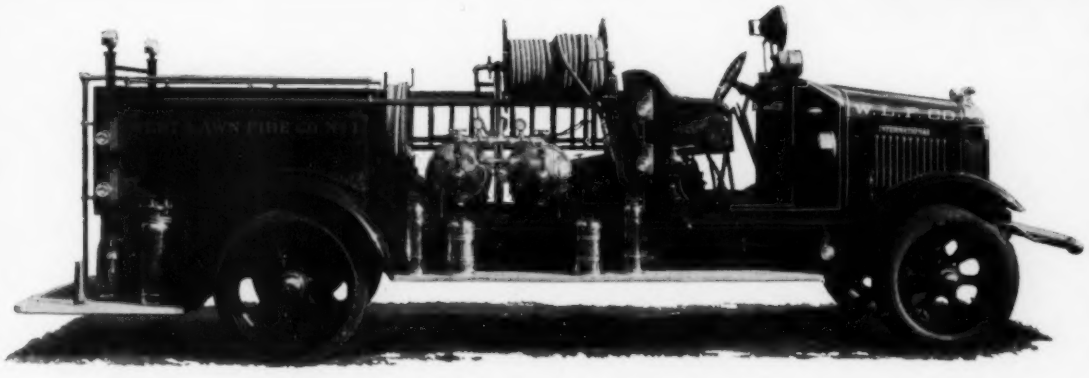

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